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THE POLITICAL ECONOMY OF PUBLIC SCHOOL FINANCE

by

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DISSERTATION

Presented to the Faculty of

The University of Texas at Dallas

in Partial Fulfillment

of the Requirements

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DOCTOR OF PHILOSOPHY IN POLITICAL ECONOMY

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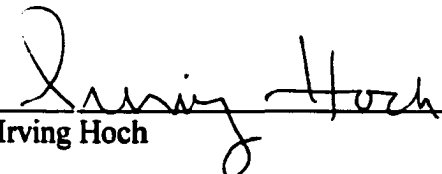# THE POLITICAL ECONOMY OF PUBLIC SCHOOL FINANCE

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DEDICATION

This dedication is for those special ones in my life who in someway helped me to endure this process. It is first dedicated to my mom, Ms. J.E. Jones, who allowed me to be. It is dedicated to my children, Gregory and Christina Lawson, who thought it was great that their mom was back in school. It is also dedicated to my husband, Charles Loubert, who, in the end, came through for me.

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I would first like to acknowledge the Higher Presence within me that is the source of my endurance and knowledge. I also acknowledge Professor Jim Murdoch for giving me the idea and opportunity to evaluate property values and school finance issues. I would like to thank Hitaf Al Far, Linda Brown, Yvonne Jones, and Cherisse McNair who helped in the preparation of the data for this dissertation.

THE POLITICAL ECONOMY OF PUBLIC SCHOOL FINANCE

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The University of Texas at Dallas, 2000

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The "Robin Hood" Bill, formally known as Texas Senate Bill 7, fueled the 1993 policy debate over school districts' expenditures and tax rates found at the local level. Property rich school districts are well financed, while property poor districts struggle to generate sufficient resources. Texas has sought to redress this problem by changing the funding per-pupil requirements in order to equalize funding to all school districts. Its formula to equalize funding to all school districts may be effective; yet, its impact on the housing market may not be realized.

As an analysis of political economy of public school finance, this dissertation first analyzes the equity issues that surround funding requirements for all public schools. Secondly it examines the policy-making arena where the courts rule that the legislative

body makes equitable funding laws. Thirdly, it develops and statistically measures the response of property values to a change in public school expenditures per pupil. The passing of Senate Bill 7 suggests an experimental design of interrupted time-series to evaluate the equalization of educational resources.

Studies that traditionally examine the effects of government policy on school funding have done so at the district level. I go on to estimate property value differentials at the elementary school zone level while controlling for the district effect. The findings suggest that convergence occurred by 1997 for the expenditures per pupil, the test results that used to measure academic achievement, and premiums on the sale of a home. With the use of GIS, I demonstrate these findings spatially.

The data comes from the Dallas Central Appraisal District, Texas Education Agency, and the independent school districts. The Tiebout Hypothesis and hedonic price modeling are used to analyze the consequences of Senate Bill 7. These finding indicate that funding to the school districts has a negative and significant effect on property values.

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CHAPTER ONE

INTRODUCTION

Funding Inequities

This dissertation attempts to study school finance in a broad context. John Vaizey

(1972) was one of the first economists to present the political economy of education. He

encapsulated the economics of education and human capital in both an empirical and

theoretical framework. The broad context for the political economy of school finance is

the interaction of government, business, and society. The heart of the matter is the issue

of equity across school districts. The policy issue has been a debate over the disparities

in expenditure and tax rates found at the local level. Local property tax financing of

public schools causes inequities. Property rich school districts are well financed and

provide their students with added enrichments that promote excellence in education.

Property poor districts struggle to generate even minimum resources for their children.

Traditionally, Texas public schools have received over half their funding from local

property taxes and have exhibited large differences in per pupil funding. Moreover, they

have shown differences in performance on standardized tests, graduation rates, and other

indicators of school quality. To some extent, the situation appears to be a vicious

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circle—inequities in funding cause poor performance, driving property values lower, leading to a smaller tax base, and therefore, less funding.

Beginning in 1993, wealthy school districts were forced, through legislation, to share their wealth with poor districts. The legislation is called Senate Bill 7 (SB 7) of 1993. This stemmed from the *Edgewood v Kirby*[1] decision of 1987 that found the Texas school finance system violated both Article I, sec 3 ("equal protection") and Article VII, Section 1 ("efficient system") provisions in the Texas Constitution. This legislation may have unintended consequences in that property values may actually change as a result of the bill. I hypothesize two scenarios in order to understand these consequences. First, if revenue redistribution actually improved the educational performance of the poor districts at the expense of the rich districts, we would expect that the housing market would reflect rational consumer behavior based on the Tiebout Hypothesis. This hypothesis suggests that consumers would "vote with their feet" and move to areas, even to poor districts, in order to take advantage of the educational value. Thus, we would expect to see, *ceteris paribus*, evidence that property values across districts tend to equalize or "converge" after SB 7. Second, if property values actually decreased in low-wealth districts; increased in high-wealth districts; or did not change; i.e., they did not converge, then there is no evidence that SB7 led to smaller gaps in perceived school quality. This would mean that while SB7 may have equalized funding public schools, it did **not** cause school quality to change enough to generate a response in property values. This addresses an important policy question because society needs to understand if the efforts

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[1] A history of the events that led to *Edgewood v Kirby* is presented in chapter 3.

of legislators to bring about equity in funding actually make any difference. One way to do this is to test for market responses to legislation and whether or not these responses are consistent with perceptions of better educational opportunities.

Recent studies from California (Brunner, Murdoch, and Thayer 2000) and Michigan (Guilfoyle 1998) suggest that public policy is effective at equalizing funding. The impact on the housing market at the district level is questionable. However, one of the weaknesses of these existing studies is that they are conducted at the district level. At such a high level of aggregation, it is difficult to control for all of the confounding influences in property markets. I hypothesize that the effects may be realized at the elementary school level as opposed to the school district level. Thus, I plan to estimate the property value differentials at the elementary school level and control for the district effect.

Property Values-Policy Connection

To analyze the response of property values to a change in the law governing school finance in Texas, it is prudent to establish and develop a connection between public policy and property values, as well as, address some issues of equity in education. These issues are covered by reviewing the legislation that set in motion a redistribution of wealth using the model of agenda setting; analyzing the consequences of this legislation on property values using the Tiebout hypothesis and hedonic price modeling; confronting the importance of current and traditional ideas on equity issues of school finance; and evaluating the legislation in terms of its impacts on tax revenue and student performance

This study focuses on fourteen of the fifteen independent school districts in Dallas County. The main data are the selling prices and attributes of single family homes in Dallas County from 1990 -1997. When merged with the school district data, the property values facilitate a test of the role of schools in the housing market before and after the legislation.

The primary analysis is based on the approximately 300 elementary attendance zones in the county. Chart 1a shows the average mean price for homes that were sold during 1990 - 1997, while Table 1a gives a snapshot of the school districts finances for just the 1994-95 school year. The chart shows that the necessary variation in property values exists in Dallas County. The table goes further to help ascertain the correlation between taxable property wealth per student and the overall assessment of student achievement via the percent pass for Texas standardized tests (TAAS). The simple correlation statistic for taxable value per pupil and percentage passing the TAAS is 0.764, indicating a strong positive association between these two measures.

What determines a school district's revenue per pupil is the formula that satisfies the Texas Supreme Court ruling in the *Edgewood III* case. The formula below represents a simplistic overview of the actual prescription for school district funding:

$SDR = TR \times SMPV \times DPV \times C$, where

SDR = School District Revenue per Pupil from all sources

TR = Tax Rate at which local property is assessed for school revenues

$SMPV$ = Mean Value of Property per Pupil in the State

DPV = Value of Property in the School District

C = Some Constant chosen to ensure that the state's education budget is held at a

chosen level

This formula can be met by redistributing funds, which the state government gives to

local school districts. The Texas Education Agency takes the broad sense of this formula

and expands it in more detail. The expanded formula represents exactly what a school

district will pay based on the weighted average daily attendance (WADA) of its students.

A discussion of the formula is given in chapter three. At the present time, Carrollton-

Farmers Branch, Coppell, Highland Park, Richardson, and Sunnyvale, have to give funds

in this redistribution scheme known as recapture.

Table 1: Average Mean Price of Homes Sold During 1990 and 1997 in Dallas County

Dallas County Average Mean Price of Homes Sold 1990-1997

**Dallas County
Independent
School District**

Dallas	$115,870
Richardson	$135,711
Carrollton	$115,350
Mesquite	$67,480
Irving	$93,403
Grand Prairie	$65,308
Coppell	$150,795
Duncanville	$87,747
Highland Park	$435,390
Desoto	$100,539
Cedar Hill	$85,137
Lancaster	$64,003
Wilmer Hutchins	$26,615
Sunnyvale	$185,714

Table 2: Sample of Dallas County Taxable Values and School Academic Indicators 1994-95

School District	1994 Net Taxable Value	Enrollment	Taxable Value Per Pupil	TAAS % Passing (All Grades)
Carrollton-Farmers Branch	$7,735,651,900	19,714	$392,394	70.5
Cedar Hill	$790,962,194	5,279	$149,832	57.8
Coppell	$2,314,453,185	5,685	$407,116	80.8
Dallas	$37,740,472,779	145,019	$260,245	38.9
Desoto	$1,041,426,183	6,530	$159,483	61.4
Duncanville	$1,962,835,893	9,936	$197,548	63.3
Garland	$6,386,559,842	42,433	$150,509	70.5
Grand Prairie	$2,090,336,481	17,571	$118,965	59.2
Highland Park	$3,949,534,111	4,918	$803,077	91.4
Irving	$5,835,692,109	25,812	$226,084	65.1
Lancaster	$636,499,061	3,945	$161,343	52.1
Mesquite	$3,582,002,118	28,819	$124,293	61.5
Richardson	$10,808,062,871	33,651	$321,181	73.8
Sunnyvale	$199,131,943	355	$560,935	84.7
Wilmer-Hutchins	$340,716,894	4,007	$85,030	35.2

Source: Texas Education Agency Public Education Information Management System (PEIMS) and Academic Excellence Indicator System (AEIS).

School Finance in Political Economy

The property tax and housing price connection is crucial for understanding public school finance. The goal of this dissertation is to not only to show if legislation changes the value of property. The goal is, also, to synthesize the context of these events into a Political Economic analysis; hence, I wish to recognize the interconnectedness of business, government, and society on the issue of public school finance. In particular, this dissertation examines the role of Senate Bill 7 (SB7) that was passed by the 73rd Texas Legislature in 1993 on equity in education and property value differentials in Dallas County. The passing of this law suggests an experimental design of interrupted time-series to evaluate the equalization of educational resources.

My analysis of SB7 builds on theories from the agenda setting and policy formulation literature. The debates and lawsuits that accompanied this piece of legislation clearly illustrate the separation of political power in our nation. The legislative body may set the rules and laws for property taxes but it is the court system that defines the constitutionality of those laws. This is the dance of powers that surrounded Senate Bill 7.

This work addresses the social context and setting in which the bill was brought to the legislature. Theories of justice and racial inequality in school finance help to shed light on this part. The analysis of property values utilizes the theories of hedonic prices and tax capitalization.

The literature connecting school quality to the housing market has at its core the seminal work of Charles Tiebout on consumer preference for local public goods.

The Tiebout model for consumer preferences of local public goods gives us a framework to actually model the data. The Tiebout model suggests a utility-maximizing consumer who weighs the benefits stemming from the program of local public services against the cost of her tax liability and chooses a residence in a locality that provides her the greatest surplus of benefits over costs. Tiebout refers to this consumer as the "consumer-voter", meaning someone who consumes from the choices of what the market offers while exercising her right to vote on her feet by not accepting a local government's policies and decisions.

Results from a study done by Kathy Hayes and Lori Taylor (1996), used a model of home purchases and data from schools in Dallas Independent School District. It suggested that property values do reflect the characteristics of the neighborhood school. Their results did not indicate that property values reflected school expenditure, but property values did reflect student test scores.

Caroline Hoxby (1998) shows there is competition among providers of local public goods. But Wallace Oates (1969) was one of the first to expand on the Tiebout hypothesis. His conclusions were: if consumers do consider the benefits of public goods and services, property values are expected to be higher in communities that offer more attractive packages of public goods. His study also points out some important variables to consider when specifying the determinants of property values.

The results of Rosen (1982) attempt to combine both the interjurisdictional comparison and the property tax change literature. His findings show that the impact of state legislation led to a substantial differential reduction in property taxes between jurisdictions.

Joseph Stiglitz (1983) outlines the implications of the ability for individuals to choose a community based on the provisions of public goods. He looks at the theories on welfare economics and concludes that it is only under very special and unreasonable assumptions that the process of individual choice among communities leads to Pareto optimality.

In response to court rulings, Texas school finance laws, which is incorporated in the Foundation School Program (FSP) have provided powerful incentives for school districts to increase tax rates. Most school districts realized their funding would increase at a higher rate if they did raise taxes close to the maximum limit. A number of other factors contributed to the rapid rise in school tax rates, including growing enrollments, increasing operating costs and stagnant tax bases. Indeed Dallas County school district's property tax rates have risen over the past ten years. The average school district nominal tax rate has increased 65% since 1986, rising to $1.40 per $100 of assessed value in 1996.[2]

Contribution to Society

Property values and taxes are very personal matters for many in society and the findings of this study will support the enactment of policy in the future. The findings show that property values did converge at the elementary school zone level. Those areas that had higher than average premiums added to the sale of their homes in 1990, had a

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[2] Texas Taxpayers and Research Association, "Property Tax Rates, Tax Burdens and Appraisal Ratios, 1995-96 ," (1 June 1998)During this time, interesting shifts have taken place within various ranges of tax rates. The most prominent trend is the change in the number of school districts with tax rates below $1.00. Between 1988 and 1996, the number of school districts levying a tax at a rate of less than $1.00 plummeted from 652 to only 10, while the number of districts taxing at rates between $1.21 and $1.50 increased substantially.

change in premiums that was lower than the average by 1997. Also, for areas that had

lower than average premiums added to the sale of their homes in 1990, those were the

areas that had a greater than average change in their premiums by 1997.

The improvement in TAAS scores[3] for those areas who had the least funding

before Senate Bill 7 is important. Other studies in the literature, also, indicate that scores

did improve. Additional years are needed to more understand the consequences of the

bill on property values. As we understand more about property values and their effect for

funding schools, we can develop local, state and national laws that are sensitive to the

educational achievements needed as well as to the property owners who support those

goals with their taxes.

There are perhaps better ways of funding public school finance. The state of

Texas does not use a state income tax. This could be a solution for funding the

educational requirements of its citizens. Allowing the housing market and the taxes paid

within a specific geographical location to determine then funding and the sharing the

funds outside local geography may not be the best solution. However, the following

chapters present logical and statistical tests of the funding system currently in place,

rather than analysis of alternative options.

Using the elementary school zone as the level of investigation of property values,

gives us a closer examination of the effects of policy change on the market. The changes

in the premiums in each school zone helps to vividly show what is occurring within a

school district. Large districts like Dallas Independent School District can overshadow

the impact of housing values by its mere size. This can lead us to the wrong conclusions

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[3] See Chart 1a

about the housing market and its response to Senate Bill 7. It is the elementary school zone level that provides the variation needed for a rigorous empirical investigation. It is the results found at this level that then gives the legislative body the evidence to provide a more meaningful policy for educational expenditures per pupil.

CHAPTER TWO

EQUITY ISSUES IN SCHOOL FINANCE

The Issues

This chapter is dedicated to the issues of equity in school finance. The question "Did Senate Bill 7 provide equalization of funds for local school districts?" is answered here. The various concepts of equity are presented as well as different positions of certain researchers who study equity and the factors associated with school finance. Most research, traditionally, has focused on vertical equity, fiscal neutrality, and even taxpayer equity. Those on the vertical equity side will adjust the pupil count for a school district to give weight to those students who have special needs like limited English proficiency, disabilities, or low academic achievement. Fiscal neutrality studies recognize that no relationship should exist between educational spending per pupil and local district's property wealth. Taxpayer equity refers to the comparative studies among communities with various degrees of property wealth to the level or amount of taxes that are paid to help finance public education. Social equality is greatly associated with issues of equity in school finance, also. Decisions about the shares of revenue and the process by which the distribution of those shares are administered often involve equality. This issue is addressed by presenting views on racism and other disparities in society by

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minority scholars who fall outside the mainstream of traditional economic and sociological literature.

Does Money Matter?

The question "does money matter?" has been asked repeatedly when the issue of school finance is placed on the policy-making agenda, and allocation of limited resources is to take place. Taken from the viewpoint that money is an input of the education production function, it is understandable why society would debate the issue. Greater outputs of educational attainment are expected from greater inputs of resources. When the outputs do not increase as would be expected, limited resources appear to be wasted.

Changes in school funding and equality measures have been motivated by court decisions. It is true that over the past fifty years, the courts have judicially-supervised schools by desegregation and integration decrees. The legislators, following judicial decree, have mandated strict formulas for increased funding. The state administrators have played a part in the equity scheme by authorizing standardized testing[1] and required textbooks. The issues of inequities in the outcomes of students and opportunities for students from poor and some ethnic minorities have remained virtually unchanged despite such centralized control.

Measures that provide more funding were in theory initially designed to address the education funding inequities in opportunities for students and outcomes of students,

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[1] Standardized testing is based on a state's mandated curriculum. It helps the state ensure that all students learn the same material. It is the state's way to measure whether or not the curriculum is being delivered to students.

and the majority of scholars exert much energy on these subjects in their analysis, and yet, the inequities remain. A high correlation of school achievement and property taxes exists, which brings into this debate the general public.

Kathy Hayes and Lori Taylor (1996) argue that superior test score outcomes demonstrate the willingness to pay a premium for residential characteristics. The work of G. Donald Jud and James Watts (1981) indicates that school quality, which is based on outcomes of test scores, has a strong, significant effect on the value of homes[2]. This illustrates there is a close relationship between the two, and if student achievement increases, property values will also.

The question of does money matter for quality education, then, begins to be answered and analyzed by those who see the worthlessness of putting more money where it does not improve some groups of student outcomes and measured achievements. The answers to equity in school finance are thus, a myriad of complex components that the courts, lawmakers, or school administrators find difficult to explain or deliver. Yet, equity issues in school finance are addressed and answered on routine bases, and it is important to realize that centrally controlled measures may not be the solution. It is also important to understand that addressing equity issues for African Americans, as with any minority group that suffers from inequities, the views and findings may need the input of African Americans, who frequently have been lacking from mainstream literature and public debates on the issues.

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[2] Another study that has related school quality with housing value and found similar results is that of John Kain and John Quigley (1975).

There is peaked interest in the worth of "shared" money, as prescribed in Senate Bill 7, that comes from the decisions and efforts of judicial, legislative and/or administrative arenas. It is understood that there are significant disparities outside of racism among the more than 17,000 school districts in the nation. These disparities can be seen in the quality of education they provide, the cost of providing equivalent educational services, and the need for different types of educational programs and the tax burdens placed upon residents. The result of these disparities and their interrelations are the deciding factor for lawmakers striving to make reform for an ever-changing society.

Concepts of Equity

Equity is frequently construed as equality. In school finance, equity can have multiple definitions. One is the ability to bring equal funding to all students no matter what school or school districts the student resides. *Equity*, according to the *American Heritage Dictionary*, refers to "the state, ideal, or quality of being just, impartial, and fair" (p. 462). In an educational setting, equity can be expanded to describe a state in which all children--minorities and non minorities, males and females, successful students, those who have fallen behind, and students who have been denied access in the past-- have equal opportunities to learn, to participate in challenging programs, and to have equal access to the services they need in order to benefit from that education. Conditions of inequity do exist among individuals, educational programs, and school districts. Wide variations in social, economic, racial, and physical conditions of individuals exacerbate the problems in attempting to treat all children and taxpayers equitably.

Noted school finance expert William Clune believes that equity defined as "equal" focuses on the inputs for a child's educational needs. Robert Berne and Leanna Stiefel (1984) defined equity from the perspective of both children and taxpayers. They defined it, as well, in the distribution of different objects among children (dollars, resources, or other inputs; educational outputs; life outcomes), and among taxpayers (tax burdens, net benefits). They recognized three major equity principles for children—horizontal equity, vertical equity, and equal opportunity or neutrality.

Under the principle of horizontal equity, students who are alike should be guaranteed equal shares of the object in question. This could be translated as equal expenditures or revenues per pupil, equal pupil-teacher ratios, and equal mastery of competency levels or equal long-term outcomes.

For children under vertical equity, those with special needs would receive the benefit of additional equally distributed resources. For school districts, cost differences and special needs generated by variations in size, density, location, and situations, like declining or rapidly rising enrollments, would be considered for additional funding allocations. The provision of vertical equity involves decisions as to what constitute legitimate differences, and how and to what extent those differences should be treated in a funding model.

Equal opportunity or fiscal neutrality is further defined as the lack of discrimination based on such characteristics as race, sex or wealth as often delimited as property wealth per pupil. For children, equal opportunity means access to resources that are not tied to their district's wealth; for taxpayers, it means being able to raise funds as

all other taxpayers. This principle known as fiscal neutrality can be understood as *ex post* (equal revenue/expenditure for equal wealth) or *ex ante* (equal tax yield for equal tax effort (Strain 1985). Fiscal neutrality is the standard that most courts follow when setting rules for states to adopt for school funding.

The most recent focus on equity in school financing, however, has been on outcomes with a shift from equity in horizontal terms to adequacy. Adequacy is another aspect of equity. It is possible to design a school finance system that meets all the criteria for equity in the distribution of revenues, but does not provide adequate funding (Berne and Stiefel 1984). Adequacy is generally defined only relative to specified goals or standards, and there is no objective or scientific way to determine which goals or standards should prevail.

Adequacy of funding is hard to explain in school districts because the assessment of the returns of funding is seldom accomplished. This suggests that "adequate" expenditures do not necessarily amount to "adequate" costs. Hanushek (1994) indicates that expenditures at different sites usually yield different outcomes due to varying degrees of efficient use of resources, differences in goals, and differences in endowment of resources and organizational setup. How to define and measure the outcomes of schooling is problematic for theorists of outcome-oriented equity (Nakib and Herrington 1998). Adequacy is to a great extent a normative measure of fiscal equalization, and in order to resolve conflicts of funding, a general understanding of what is adequate has to be defined. Lawmakers will skirt this issue and deal only with the inputs, or those output measures that reach their attention. It is at this point where the lawmakers decide that

"equitable" solutions are worth more rather than "adequate" because it is not the schoolchildren who will be voting at the polls; it is the taxpayer. The fault for choosing equity over adequacy is now pushed into the taxpayers' arena and because he/she will want to pay as little taxes as possible, the lawmakers will do only enough to please the voter. Scholars in education finance and similar venues push for a better understanding of adequacy.

The shift to adequacy is being driven also by an emerging consensus that high minimum outcomes should be the orientating goal of both policy and finance[3]. Educational outputs or outcomes are what most scholars target for research, once inputs are conceptualized in monetary terms. Educational outputs can be defined as those qualities, characteristics, and skills that are developed or achieved through schooling. It includes cognitive skills, often measured by achievement test scores, affective skills like socialization, and moral development.

To understand these outputs to a greater extent, Sherry Strain (1985) developed categories of equity, which she placed into four levels of social and economic philosophy. Each of these levels requires more state involvement than the last.

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[3] Texas is one of the states presently seeking to determine how much an adequate education costs.

Level I- Commutative Equity

Under the commutative interpretation of equity, each person is entitled to something simply because it is hers and the distribution produced by the marketplace is left unaltered. This implies that the state is not forced to produce corrective action to redress disparate conditions created by the market. Libertarians strongly believe in this rationale and want complete local control of all public school finance. The problem with this interpretation, however, it that it allows those who live in wealthy school districts to constantly have better resources for education and higher expenditures per pupil. Localities with low property values usually have low funding per pupil even when tax rates are high. This means that equality for the masses would not exist under this rationale.

Level II-Distributive Equity

Distributive equity consists of conditions created by numerous methods of redistribution that government is notoriously making. Since it requires only mathematical equity of fiscal resources, most states require some amount of distributive equity, but this is the point at which the issues of equality and public school finance come to the surface for public debate. Fiscal neutrality (post ante) involves transfer of payments so that, local districts are treated as though they had access to an equal amount of wealth per child. An in-depth discussion of the funding equalization for Dallas County is provided in chapter 5. It is evident that funding did equalize in terms of wealth per student after Senate Bill 7 took effect.

Using Map 2.1 we can see some aspects of the funding in 1990 and 1997 as it separates the white students from all other ethnic diversities. Twenty-seven percent of the school zones had a percentage of white students less than the mean of 45% and received less than the mean of $2,697 for funding. By 1997, more schools had even less white students in their enrollment and yet received less than the mean for funding, which was $3,719. It is primarily the inner city areas that had the decreases in white student enrollment and funding per pupil as compared to the mean for each year. These areas represent greater challenges in teaching due to language barriers and proper nutritional needs, yet it appears that more money follows those areas with more white students.

Map 2.1

Correlation of Percentage White Students to Funding

White/Funding 1990
- White Students < Median; Funding < Median
- White Students > Median; Funding < Median
- White Students < Median; Funding > Median
- White Students > Median; Funding > Median

White/Funding 1997
- White Students < Median; Funding <Median
- White Students > Median; Funding < Median
- White Students < Median; Funding > Median
- White Students > Median; Funding > Median
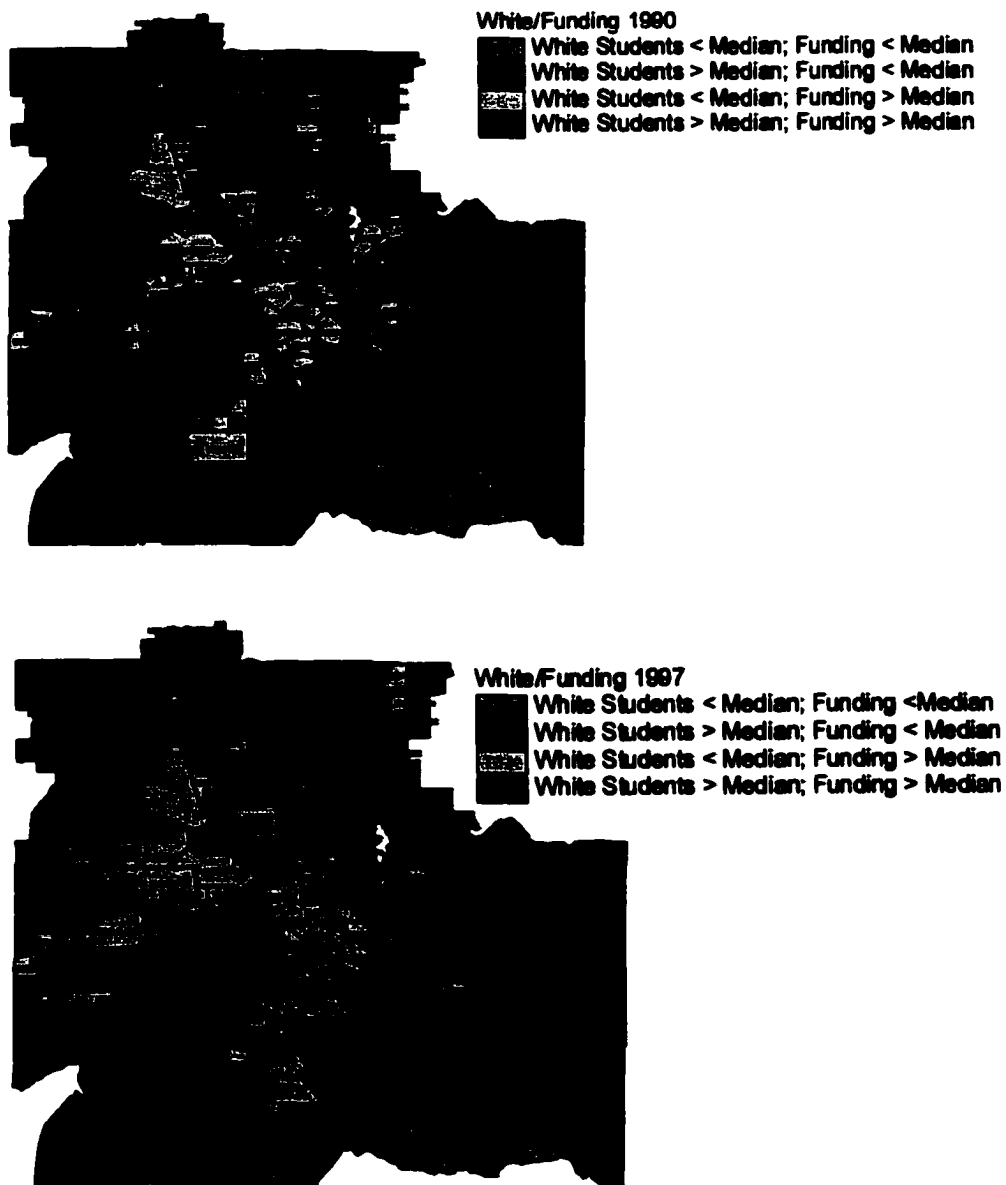
Level III-Restitution Equity

The concept of restitution recognizes that an unjust distribution of financial advantage in society may be worsened by inadvertent or inappropriate antecedent state action, and that state compensation for this impact should be sought through redistributive tax and expenditure policies. The work by Hayek (1976) addresses how equity can be detrimental if government provides equal benefits to certain groups of people. He believes that affirmative action is not required to achieve justice unless the condition was itself created by the government[4].

Level IV-Positivism

The concept of positivism as discussed by John Rawls (1971) advocates the philosophy that an unequal distribution of resources operates to the advantage of the "least favored." It stresses that any inherent or innate disadvantage or disparity among individuals should be corrected by affirmative actions from the government. The government should have a moral obligation to assist the disadvantaged, even though their position is not the result of government action. Positivism, as opposed to commutative equity, would require total state financing and little or no local control.

The task for legislators and researchers of equity issues in school financing should be to define objects for equitable division and/or distribution. This can be done by looking at inputs and outputs together in a type of system analysis through which one

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[4] Texas government has until very recent years created and fostered unjust funding policies for African Americans' public education.

attempts to measure changes in outputs bought about by changes in the quantity and quality of inputs (Strain 1985). If analysis fails to understand the fundamental problems associated with a society that harbors veiled racism or socioeconomic status injustices, these methods of input/output still will fail to deliver an equitable system of school finance, and money will simply be "thrown" at the problem. The problem will still remain.

Student Achievement and School Finance

Student achievement and school finance has been a controversial topic for over 30 years with no concrete answers being discovered. Elizabeth Harter (1999) argued that the relationship between school expenditures and student achievement depends on how money is spent. She tested the relationship of money and achievement by using data from elementary schools in Texas and by holding constant student academic potential, student socioeconomic background, and school characteristics. Her results indicated that only certain types of expenditure play an important part in explaining student achievement.

Education is thought to be the preparation of our youth for the labor market, so the question of whether money matters needs to be addressed. Do graduates from districts with high spending levels per pupil perform better in the labor market (do they earn more money) compared to those with poor resources and low spending? David Card and Alan Krueger (1996) conclude that they do.

The literature presents disparate views on the effectiveness of greater spending on school resources. For those who study the same measures of school performance, one side (Hanushek 1996) suggests that greater spending is necessary[5] while the other side (Murnane and Levy 1996) concludes that spending more money does not bring any meaningful improvement to student performance.

Gary Burtless (1996) poses the question of why it is possible school resources have no effect on a student's achievement, but has a measurable and beneficial effect on student's earnings after they leave school. Hanushek (1986) concluded that there appears to be no strong or systematic relationship between school expenditures and student performance. Changes in school expenditures to improve student performance needs to be manifested by other means outside of increased expenditures.

Larry Hedges and Rob Greenwald (1996) argue that single-parent households raise a greater number of children, and that more students are members of disadvantaged minority groups. Therefore, comparisons of changes in student performances need to include the dynamics that these conditions have on student achievements. For Hedges and Greenwald (1996) the outcome of aggregate time-series trends cannot be used to make claims that spending more money on public education does no good. There appears to be a positive correlation of spending and healthier outcomes for children, which may eventually lead to greater student performance.

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[5] Hanushek (1986) does state that increased expenditures by themselves offer no overall promise for improving education. Therefore, it should be carefully examined before utilizing a plan that includes greater expenditures.

Economists treat student achievement as a product of different inputs as previously indicated. This is similar to what is seen in a Cobb-Douglas production function. Hanushek (1971, 1972, 1986) argues that the function that explains student achievement should include a vector of educational outputs of each student over time, a vector of entering achievement levels over time, a vector of family inputs to education, a vector of peer influences, a vector of innate abilities of each student, and a vector of school inputs for each student.

Murnane and Phillips (1981) argue a production function of education that explains student achievement over time is greatly influenced by the achievements of the preceding year. Their educational production function includes those achievements of the preceding year, a vector of teacher attributes and other variables similar to Hanushek. They concluded that there are significant interaction effects between the characteristics of teachers and students, but the practical idea of racism, which may be of great concern in many school districts, never entered their equation.

Murnane investigates the improvement of vocabulary skills of inner city African American children in 4 elementary grade levels. He attempts to discover the extent to which variables describing the classroom behavior of teachers and teachers' background and training explain differences in the teacher's effectiveness for student achievement. His results show that teacher's choices of techniques matter; and the characteristics of teaching provide information about their effectiveness. He does not attempt to test if racism plays a part in their effectiveness or lack thereof.

Indeed Yuan Shuan's (1989) dissertation measured the most effective type of teacher for increasing student achievement. The "type" of teacher was based on ethnicity, sex, teacher experiences and combinations of any two of these characteristics. The "type" of student included race, sex, poverty status, or the interactive method of race/sex/poverty status. His adjusted R-squares never reached above 0.771, which only explained the teacher/pupil effectiveness for white females. The highest adjusted R-square for African Americans was 0.616 and because the coefficients were significant, it was believed to add in a positive way to the literature already analyzed. As research design indicates, this contribution adds "validity" to theories and ideas already believed.

The solution for what has been presented as an inequity for some groups of students can be found by new ways of testing for racism. Racism is considered an overriding issue in some literature and should be viewed as an intervening variable in any empirical study seeking to explain student achievement. If conditions could be created that prompt the exercise of racists activities and behaviors, or discourage it, then there would be different findings for the studies that point out the poor academic achievement of African Americans (Kuykendall 1997). As a beginning measure, an index that places behavior of white teachers with African American students on a scale would be an example of adding racism to the analysis.

When the production function for educational achievement resides in the belief that innate abilities are highly correlated with socioeconomic status (SES), audiences for

policy agenda setting have their ammunition to validate their original position.[6] Their position is: African Americans are poor, and, thereby, handicapped for academic achievement. Hanushek (1972) easily skirts that proclamation by assessing that the relationship between background and endowment is problematic for policy implications and there is no solution for understanding that relationship in a correctly specified model.

Hanushek (1972) argues that using individual student analysis will solve many of the problems seen in his education production function. One dimension of his analysis with African American students suggests the importance of family structure and the lack thereof. This is a believable problem if the family structure is weak, yet the percentage of African American men in prison in areas studied are not included. African American men are four times more likely to be incarcerated in the United States than black men in the apartheid South Africa (Duke 1993). Having such a large percentage of men in prison who also are fathers to school-age children, does make for a weak family structure. Such great irony exists when academicians draw attention to the weakness in family structure, without addressing the issues and attitudes of a racist society that promotes greater numbers of African Americans to prison.

Hanushek (1976, p85) concludes that attitude influences are worthwhile for analyses but he also asserts, "the statistical complexities surrounding the possibility of a

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[6] When society portrays a belief, all in society generally buys into the same belief. Therefore, African American parents and students accept the belief of their inferiority, to a large extent, for educational attainment. It takes those who do not "buy into" that belief to share the belief that no one is particularly inferior to achievement.

simultaneous relationship between achievement and attitude imply that little faith should be placed in the specific parameter estimates for attitudes in the structural equation for achievement." Therefore, attitudes may not be important for Hanushek and others who follow his line of reasoning. These kinds of studies on student achievement draw the parameters whereby student achievement is studied and policy implications are made.

The Minority Viewpoint on Educational Outcomes

There is research on African Americans cognitive abilities and experiences as a minority in public schools that is done by African Americans. A simple search in the bibliographies of the previous scholars did not uncover any of these studies. This portion of equity issues is presented, thus, to bring forth those scholars and the importance of their "omitted" works in the discussion of variables and ideas in policy implications of matters for school finance and student achievement.

Edmond Gordon (1985) reveals that the issues of cultural and ethnic diversity have been incompletely or inadequately assessed in the knowledge production literature. When it is recognized that many of the basic propositions of social science such as objectivity, positivism, and empiricism, are culture-bound, the usefulness of the findings limits the production of knowledge (Gordon 1985). It is recognized that those who make the decisions on these propositions have traditionally been white males who were merely aiming to provide the best ways to understand and make improvements in educational attainments of their youths. Today's modern schools are slow to have critical assessment made from those who represent the diversity and complexity of the student body.

Arthur Littleton (1976) argues that comparison studies that focus on differences between black and white students only promotes those differences. Comparative studies on similarities would go further to bring useful information in education research. He also condemns the use of what he views as faulty instruments that contain built-in bias such as the Binet Test for intelligence. To use an inappropriate instrument places the scholar as well as the subject in a compromising position that is unnecessary. He proposes alternatives to the faulty and biased research of those who believe they are the experts on the plight of minorities in educational issues. But these flawed pundits have easy access to the popular scholarly journals. Some of Littleton's alternatives would correct these omissions by placing representatives of the minority research community on review panels of every major journal in the country, increasing the amount of scholarly research in minority publications, using the courts to eliminate and prevent the publication of negative, biased findings, placing minority scholars on review committees that receive funding for any research that pertains to minority education, encouraging more minorities to engage in statistically sound longitudinal, cross-sectional, and comparison studies, and devote more research on issues such as motivation, attitude, perception, learning, and memory.

Other scholars who report their findings in the Journal of Negro Education see the production of education on the micro-level. Nonetheless, they add a needed dimension to the understanding of education production function especially for African American students. Eric Cooper and Daniel Levine (1993) present a theoretical framework, first developed by A. D. Kagan that identifies the alienation process for African American

students in the classroom, and explains the low performance found in student
achievement. Kagan assumes (Cooper 1993) that labels teachers assign to students
affects how the teachers perceive classroom events and how they respond to students, and
that students do not necessarily use cognitive skills they possess unless provided with
appropriate foundation for learning.

The only way for students to engage in academics (Cooper and Levine 1993) in a
meaningful way is to have teachers utilize instructional intervention that will activate a
student's ability for collaborative learning. Cognitive activity and student achievement
may indeed be socially defined and there is great need for teachers who can maintain
high expectations within the social context of the classroom. Instruction that provides a
basis for learning through historical and thematic research focused on improving the self-
concepts as well as cognitive performances of African American students has been absent
from most schools. Changes in legislation that would include these suggestions could
benefit students and the reported "achievement" results.

The literature on self-perception and self-concept (Olsen 1972, Burbach and
Bridgeman 1972, Scott 1976, Williams and Muehl 1978, Washington 1982, Banks 1984,
Brookover 1985, Holliday 1985, and West 1985) suggests that the way one perceives
himself as a learner in the classroom is related to his academic achievement. Even
though this is micro-level analysis of a macro issue, it is important factor within a system
of equity that is to work for the student as well as the taxpayer. James Williams and
Siegmar Meuhl (1976) investigated the perceptions of black and white students on how
their teachers perceived their performance. Their findings suggest that African American

students were generally perceived as "inferior" to white students. Thus, their test scores and other measurements for achievement reflected that same notion, because students who feel they are inferior will act as though they actually are.

Carol West (1985) suggests that administrative instructional leadership is an important factor in academic achievement for African American students. This leadership is based on the premise that student achievement will be higher in urban elementary schools in which the administration provides instructional leadership than in schools where instructional leadership is lacking. Valora Washington's (1982) presentation of the establishment bias theory helps to give an understanding of "group" differences with teachers and students. The establishment bias theory purports that schooling is biased against pupils not sharing the characteristics of the majority of teachers, who are white females. Conversely, students who have status similar to the "establishment" receive inherent rewards within the schools. Washington (1982) and Scott (1973) argue that a teacher's perception of students is an important variable in student achievement, and it should be considered when making assessments of those achievements.

As presented, the research shown in African American literature comes out of a perspective not seen in the "noted" economists' literature. This gives an added dimension of racism because ideas and issues of equity are largely ignored in the mainstream literature. Equity issues can never be fully resolved until both groups of scholars merge to understand what additional factors should be measured in statistical analyses. The information and recommendations presented to lawmakers will continue to

be unduly biased until this can happen. Policy reform that can positively influence African American student achievement is in slow motion. None of the leading economists who quickly report the low-achieving results of African Americans give time to models that approach these instruction reforms.

Schools will suffer from incorrectly specified models for funding because the outputs of those inputs did not change. Lawmakers continue to fail to legislate appropriate funding for the needs of the schools. Without appropriateness of funding, it can be implied that money does not matter. At the same time, students in minority groups, particularly African Americans, will continue to show unacceptable levels achievement that suggests an inferior status to those of mainstream students. As long as these levels are presented as being a problem for schools without understanding the logic of their existence, funding measures will remain outside the theoretical framework of rational consumers and markets.

Equity in Texas

For Texas education, equity involves issues of both class and race. The rural areas as well as minority groups have long-suffered from inequitable funding for public schools[7]. Senate Bill 7 emerged from the sentiment that, minority and low-income groups did not have equal access to the same amount of funds as white and high-income groups. Texas was however not alone in facing reforms to school financing. The use of litigation through the courts for reform began with the California Supreme Court's 1971 decision in *Serrano v. Priest*. This court ruled in essence that the quality of a child's

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[7] Chapter three presents detailed history of funding for school in Texas.

education should not be dependent on the wealth of the people who live in the school district in which the child attends school. The standard of fiscal neutrality emerged from this ruling.[8]

With a temperament of equity and equality also being present across the country during the sixties, a sheet-metal worker in San Antonio, Demetrio Rodriguez, became head plaintiff in a lawsuit for parents in a poor district in San Antonio in 1968. He believed that financial equity did not exist for his child's school district and sought to make legal changes in his school district by filing a lawsuit with the state.

The infamous court case that adamantly fueled school financing in Texas was *San Antonio Independent School District v Rodriguez* in 1971[9]. The suit instigated by Rodriguez alleged that the state was not providing his child an education that was equal to what richer districts provided their children. Rodriguez's child lived in the Edgewood Independent School District, which is located on the southwest side of San Antonio. This area is considered poor by many standards yet it had a property tax rate of $1.05 per $100 of assessed value. This rate generated only $26 per pupil per year because the property in the district was not very valuable. The nearby wealthier district of Alamo Heights had a lower property tax rate of only $.85 per $100 of assessed property value, and this district managed to raise $333 per pupil each year. Alamo Heights average property value was

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[8] Fiscal neutrality is a standard that is used to a greater or lesser degree in most school finance cases. To meet the fiscal neutrality states would have to require that the tax effort among school districts yield equal revenue per pupil from state and local sources.

[9] A U.S. district court ruled Texas's education finance system unconstitutional in this case; however, the Supreme Court reversed that decision in 1973. It believed that even though the finance system did not violate the federal constitution, the method of allocation was "chaotic and unjust".

$45,095 in 1970 while the average value in Edgewood was only $5,429. Also the Texas system imposes a property tax ceiling of $1.50, therefore Edgewood could never reach the funding of $333 per pupil even if they wanted to raise their tax rate. (Smith 1993) State laws in Texas prevented the Edgewood School District from attaining the resources available in wealthy districts is what the courts would rule. The State's program for providing additional funds to schools helped to create a greater funding inequity. The state provided an additional $225 per student to Alamo Heights, but only $222 per student in Edgewood. The federal government helped to remedy this imbalance of funding by providing $108 per pupil to Edgewood and only $26 per pupil at Alamo Heights (Smith 1993). As the funding totals ended, Alamo Heights could spend $238 more per pupil than Edgewood.

The educational resources afforded to the students were different in each of the two districts. Alamo Heights had 40% of their teachers with a master's degree while Edgewood did well to have teachers right out of college who received emergency teaching certificates. The number of students a counselor advised was 6X more at Edgewood than at Alamo Heights. The list of inequities continues, and the need to render a favorable judgment was seen.

The plaintiff's argument for the case alleged that the education financing system violated the constitutional requirement in the Fourteenth Amendment for equal protection of the laws. The argument was that the property tax system led to unequal treatment for school children that live in poor districts. The defendants were able to succeed in persuading the federal judges to delay the actions from the courts to give the legislature

time to prepare a suitable remedy. The courts allowed the legislature three years to come up with a solution but finally recognized the lawmakers were "spinning their wheels" on the subject. In 1971 a U.S. district court finally ruled that the Texas schools finance system did violate the equal protection clause of the Fourteenth Amendment when local school districts relied on vastly unequal property taxes for school finance.[10]

Within the framework of the political economy of school finance, the equity issues that remain with society becomes a test of this society to resolve the racism and the class bias that exists. It can be resolved most effectively by forging a combination of technical, financial, and political analysis that involves all of those who present reputable studies on the issues.

To keep funding per pupil within a rational theoretical model without the added dimensions provided by those within African American literature or other ethnic perspectives, will only cause equity issues to spin in a continuous circle with only lip service being paid to a "solution". It is prudent to bring the diversity of thought and academic findings to the arena of policy debate. Clearly, as is evident in this country with so many differences among the population, equity issues in school finance can be resolved but it is important to bring the problem of racism and class bias to the center of the focus on equity. It is also necessary to understand the rapid changes in the demographics of this population and, that the problem of racism and class bias may not be the same continuously. The economic health of this country and public perception of

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[10] *Rodriguez v. San Antonio Independent School District*, 337 F. Supp.280 (W. D. Texas, 1971).

tax fairness and tax burden are important considerations that lawmakers must use in order to formulate equity in school finance policy. Public understanding of school-level performance and funding, and the interest of the future generations, also, need to be a part of the ongoing policy process. This will assist in bringing equity to school finance. The process that Texas engaged upon for equity is discussed in the following chapter.

CHAPTER THREE

THE PUBLIC POLICY OF SCHOOL FINANCE

"It is my present intention to recommend that Edgewood not be pursued. My recommendation is going to be we put our guns in our holsters."
--Buck Wood, 1999[1]

The Making of a Policy

Public policy is a process where all the participants and problems of a particular issue come together and laws are made; it is the relationship of a governmental unit to its environment. The policy process of Senate Bill 7 (SB7) follows the theoretical framework of problems, politics, and visible participants that is provided by John Kingdon. The first part of this chapter relates the history of school finance, and leads us to recognize that a problem existed which is the first stage of agenda setting that Kingdon discusses. The model for policy formation is described in Kingdon's *Agendas, Alternatives and Public Policy* (1984) and is similar to John Anderson's model in *Public Policymaking* (1994). Anderson's model is more detailed than Kingdon's. Anderson ascribes five stages through which one can understand the policy process:

1. Problem identification and agenda formation

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[1] Phillips Brooks, "Attorney urging an end to school finance lawsuit," *American-Statesman*, 5 June 1999.(Attorney for the 100+ property-poor school districts that intervened in the long-running school finance lawsuit in Texas.)

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2. Policy formation

3. Policy adoption

4. Implementation

5. Evaluation

This chapter will also address the politics and visible participants and place them within

the context of their contribution, positively or negatively, and it will end with a

discussion on the aftermath and evaluation of the law.

The events that took place before Senate Bill 7 (SB7) was passed in the Texas

legislature suggest the need to examine the policy process and, in particular, the agenda

setting phase in more detail. The need to understand this process is paramount because

billions of dollars are spent on education.

Stage 1:Problem Identification and Agenda Formation

Problem identification and agenda formation can be defined as a condition or

situation that produces needs or dissatisfaction on the part of the people for which relief

or redress is sought. Specific problems receive the attention of public officials in order to

secure some action on the matter. For this work, equal funding of education for all

children in the public schools has long been an issue. A look at the history of school

finance in Texas helps explain problem identification and agenda formation.

The History of School Finance

The history of school finance began when the Texas Constitution of 1876 created

a public school system that from its inception relied on the local community's tax

revenues. Article VII, Section 1 reads:

> Public Schools to be Established—A diffusion of knowledge being essential
> to the preservation of the liberties and rights of the people, it shall be the duty
> of the Legislature of the State to establish and make suitable provision for the
> support and maintenance of an efficient system of public free school.

In addition to establishing public schools, the Texas Constitution in Article VII, Section 5 created the Available School Fund (ASF), which in part consisted of the interest, derived from the permanent school fund:

> The principal of all bonds and other funds, and the principal arising from the sale
> of the lands hereinbefore set apart to said school fund, shall be the permanent school
> fund, and all interest derivable there from and the taxes herein authorized and levied shall
> be the available school fund. The available school fund shall be applied annually to the
> support of the public free schools.

> The other two parts of the ASF consisted of a maximum of one-fourth of the
> general revenue, and a poll tax of $1.00 on all males, ages 21 to 60.[1] For many years the
> ASF was the sole revenue for schools from the state. The first distribution of state
> revenue resulted in funding $3.59 per pupil (Walker and Casey 1996).

In 1875 legislators had reinstated a practice that had begun in 1846 of cities having authority over schools by financing construction of school buildings from cash reserves or issuance of bonds. This practice was simply incorporated into the new constitution. This was the beginning of local authority for financing of schools in Texas. A few years later, demands for reform due to the inadequacy of funding for the schools

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[1] Texas Constitution of 1876, Article VII, Section 3

were reverberating across the state. Attempts were made to increase the Permanent School Fund (PSF) by selling off some of the land owned by the state, but this effort was not enough for the needs of the many students within the wide borders of the state. The only remedy appeared to be local taxation. However, school districts, especially in the rural areas, as are now defined, did not exist during that period.

Schools were reorganized annually in community district arrangements decided by the parents. Taxation, permanent buildings, curriculum continuity and consistent administrative personnel were not present. In 1883 a constitutional amendment permitted the formation of rural school districts within counties, and they eventually had similar power to issue bonds. This amendment also authorized a state ad valorem tax[2] of twenty cents per one hundred dollars. The local taxation in common school districts[3] was at a maximum of twenty cents per one hundred dollars provided the tax was approved by two-thirds of the property owners in the district. Many of these districts voted not to levy taxes even though the state did not entail adequate funding which left their schools to provide a lower level of quality education. Municipal districts, which accounted for only five percent of all school districts on the other hand, were authorized to tax at a maximum of fifty cents per one hundred dollar, and many of them did. Lastly, this amendment added to the ASF one-fourth of the revenue from the state occupation tax, and the general revenue allowance was dropped, but the inequities in education finance had now begun.

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[2] An ad valorem tax is one in which authorities can increase the tax as the value of the property increases.

[3] Common School Districts comprised the vast majority of schools at this time. Municipal Districts were comprised of the city schools.

As difficult as the picture seems for common school districts, lawmakers did provide for some progress to ensure more funding. The PSF was used to invest in building bonds for independent school districts so many of the common school districts modified their status to independent districts.

In 1908 a constitutional amendment mandated the formation of school districts for elementary-aged children. This amendment required local communities to provide and pay for schools, establishing state-mandated education as a local responsibility. The tax ceiling for common and independent school districts rose to fifty cents per one hundred dollars. A simple majority, not the original two-thirds, was allowed for voting in local taxes.

Changes were also occurring in secondary education as well during this early part of the twentieth century. County boards of education were created and given the authority to form rural high school districts. When James Ferguson campaigned for governor in 1914, he ran on a platform of providing aid to rural high schools. This represented the first departure from the per-capita funding method of 1876.

The Texas Legislature first addressed the issue of equity in funding in 1915 by appropriating special equalization aid to encourage local tax efforts in rural school districts. To receive aid the rural districts had to tax at the maximum legal tax rate of fifty cents per one hundred dollars. This amounted to the modern version of guaranteed tax yield. A constitutional amendment in 1918 authorized a state ad valorem tax of fifteen cents per one hundred dollars to finance free textbooks for all students, including those in the rural areas. For the first time the Legislature was given authority under this amendment to appropriate funds directly from the state treasury for education purposes.

By 1925, the disparities in local wealth and local effort for providing opportunities of education for all citizens were generally recognized. The parsimonious nature of the state for aid helped fuel this inequality. Because many Texans were not committed to public education, local taxation continued to be limited until 1949. A study done in 1918 ranked Texas as the 44th among 48 states in the amount of local taxation for schools (Walker and Casey 1996).

The expanded revenues from oil and gasoline taxes provided greater leverage for the state to appropriate money for education in spite of the meagerness of the funds. The revised Equalization Aid of 1937 allowed payments to qualifying low-property-wealth districts based on a teacher unit formula and scheduled salary range. Post World War II brought about a host of changes that were hard for the legislature to keep abreast. All across the country the need to make changes in education laws for African Americans became abundantly clear. By the sixties civil rights' laws had become a national law that states had to endorse, which meant states had to address laws under their domain that was not congruent with the current federal law. The increases in the number of African-American and Hispanic students added to the troubling concept of equalization due to segregation and disparate spending among whites.

The debate for increases for teacher salaries became fierce during the 50th Legislature in 1947. The intensity over this issue ultimately led to sweeping reforms in the state's entire system of public school finance. The legislative committee given responsibility to design the new structure was the Gilmer-Aikin Committee. Politics played a major role in the enactment of the Gilmer-Aikin proposal. The committee

sought and acquired popular approval of the plan, while waging political war on the floor of the legislature with each other over the substance of the new plan for school finance.

The plan that was assembled called for a minimum foundation program (MFP), which relied on a set of formulas for allocating state funds for personnel and operations. The state's role shifted from just promoting local efforts to providing funding. A new concept for financing public schools was now in process. Texas had to streamline its entire educational system and bring about some crucial changes. As the basic method of state education, it was intended to guarantee each child an equal minimum educational opportunity. Some of the changes that were enacted consisted of the following:

1. The State Department of Education was merged with the Texas Education Agency. This strengthened the power of the state to guide the development of education to a more effective program.

2. The State School Board of nine members appointed by the Governor with the approval of the Senate was changed to a board of 21 members elected by a popular vote.

3. The State Superintendent of Public Instruction formerly elected became the State Commissioner of Education appointed by the State Board for a term of four years.

4. Since the financial ability of the school districts of Texas varied greatly, the new system abolished the traditional per capita system of distributing state funds. In its place it adopted a plan based on the "economic index"[4].

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[4] This plan used an economic index to assign each school district its proportionate share of the twenty percent of the Minimum Foundation Program (MFP) which was to be financed locally in the form of a chargeback called the local fund assignment. The state was to assume the remaining eighty percent of the cost of the MFP. Local districts were

5. A minimum salary for teachers was adopted in order to insure a commitment to the teaching profession.

With all these new changes, the Texas Public School System believed it was equipped to forge ahead as an efficient and up-to-date organization.

Stage 2: Policy Formation

Policy formation involves the development of pertinent and acceptable proposed courses of action for dealing with public problems. It must be concerned with developing a preferred or satisfactory alternative and with winning approval. Before SB7 was adopted Texas went through several laws trying to satisfy the court's ruling on "equal access to similar revenues." It was not easy for the legislative body to find the solution that would satisfy the court.

Policies rejected by the courts

Policymakers in Texas did begin to alter state funding formulas for the public schools. In 1977 schools shifted more aid to the poorest districts and added equalization funds. For the next seven years they appropriated $1.1 billion in equalization aid (Todd 1996). In July of that year, the Legislature passed Senate Bill 1, which increased foundation program aid. The foundation program is the set of formulas for allocating state funds for personnel and operations to school districts. By the use of a complicated economic index, each local school district is assigned its proportionate share of the 20 percent of the minimum foundation program to be financed locally in the form of a

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free to enrich their program beyond the state minimum program depending on their local ability and willingness to tax.

chargeback called the local fund assignment. The state, at least in theory, is responsible for the other 80% of the program. Local districts have been free to enrich their program beyond the state's minimum according to their ability to raise that money locally. With Senate Bill 1 the local fund assignment rate was reduced, equal distribution of aid was attempted, and vocational and special education were included as units in the foundation program's calculation rather than as additional units.

Foundation Plans

The foundation program concept was born in 1923 and based on the school finance theory of three men, George D. Strayer, Robert M. Haig, and Paul R. Mort. Their theory was an amplification of Ellwood P. Cubberly who began the movement in school finance in 1906 with his classic book on *School Funds and Their Apportionment*. Texas school finance has since followed the principles of the Strayer-Haig-Mort theory (Walker & Casey 1996):

- A foundation program should be devised to assure an adequate minimum educational program for all children, the funding for which should be a state's foremost priority

- Each local education agency should be required to levy a minimum tax rate that becomes the local portion of the foundation program; however, this minimum tax rate should be kept low so that all districts may participate.

- The foundation program should equalize (be based upon local ability to pay), but only to a point. A district should have the discretion to spend above the foundation program level.

- Its program features should be codified in law and applied equally to all districts.

- The foundation program should be organized in a way to promote local initiative and efficiency.

- It should comprise the major portion of the state's funds for education.

- Uniform property assessment must be an antecedent to ensure that no district receives additional funds through underassessment of its property values.

- The program should encourage consolidation and reorganization of districts; however it should provide for the support of necessary small districts, such as those in sparsely populated areas.

Texas was among the many states that adopted the Strayer-Haig-Mort theory of state support for schools during the following decades. The structures that emerged for Texas had three sources of inequity that were:

1. Flat grants are still available to districts which can secure them.

2. The state legislature never legislate the massive appropriations needed for a good minimum program.

3. Up until Senate Bill 7, many local areas chose to fund their district at a much higher level than that provided by a state foundation program.

As stated specifically in the Texas Education Code[5], the program was to guarantee that each school district in the state had two specific requirements:

adequate resources to provide each eligible student a basic instructional program and facilities suitable to the student's educational needs; and access to a

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[5] The Education Code is the comprehensive collection of statutes for education in the State of Texas.

substantially equalized program of financing in excess of basic costs of certain services.

The basic features of the Texas school aid model contain:

- The per-capita Available School Fund (AFS) distribution to districts is made on an unequalized, flat-grant basis to offset part of each district's Tier I cost. This first tier is composed of several allotments of funds intended to meet the cost of providing a basic instructional program suitable to each eligible student's educational needs. Each of the allotments is based on formulas specified in the Texas Education Code, Chapter 42, which allocate specific sums of funding for the services provided. The local share is determined by multiplying the preceding year's total tax base, as determined by the Comptroller of Public Accounts, by a rate 86 cents per hundred dollars of value. The resulting local share is subtracted from the formula cost of the first tier to determine the amount of state aid.

- The Technology Allotment (TA) is also distributed without regard to a district's equalized wealth level but is not charged back against Tier I.

- The equalized support for public education is the Basic Entitlement and Special Allotments (Tier I). These programs are financed through state aid and a local share in the form of a tax levied by each school district. Basic education programs as well as special education, gifted and talented, vocational, bilingual, and compensatory programs are funded through Tier I funding.

- Tier II reflects the Guaranteed Yield Program (GYP). The second tier of funding provides equalized access to funds in the excess of the basic costs for certain

services. It allows districts to chose revenue level above that of the basic costs.

The second tier funding mechanism assures that districts choosing similar revenue

levels per student have substantially equal tax effort [6]. This provides additional

support to school districts that impose a levy beyond that required by the local

share of Tier I.

Guaranteed Yield Programs are seldom embraced in pure form because they often

put states in a reactive role because state funding must respond to the local tax effort and

spending patterns. Lawmakers place spending caps so districts do not receive their full

entitlement, and many times the equalization effects are not fully realized. Other

problems for guaranteed yield programs is that it is not known what the local costs and

needs are, or that the state does not have the funds available to help the district. This aid

is meant as a backup to local tax revenue in order that low-wealth districts can approach

expenditure equality with more affluent districts, given reasonable tax efforts in the

poorer districts.

The funding for the foundation program was to come from local property taxes

(20 percent) and the state (80 percent).[7] The problem was that there were several

thousand small school districts that had excessive debt to pay. Policy makers hoped this

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[6] For each penny of such tax effort per hundred dollars of valuation, a district is entitled to at least $21 in revenue per student from both state and local resources (Texas Education Code Section 42.302(a). If a penny of tax effort produces more than $21 per penny, there is no state aid paid in the second tier. To the extent that the local tax effort produces less than $21 per penny, state aid makes up the difference. This approach to providing substantially equal access to revenue has been an outcome of the continued focus on the financial equity of the foundation school program in the state courts.

[7]Todd, John R., 1996, *Texas Politics: The Challenge of Change*, "Education Policy in Texas", p.339.

bill would provide incentives for small and rural school district to consolidate and thereby alleviate the debt burden. Too few districts actually consolidated because they wanted to retain control of their own small area and thereby the situation remained the same.

The 66th Legislature in 1979 tried to improve upon equalization among the school districts and how to refine the revenue schemes to fund the schools. Senate Bill 350 expanded the foundation program aid by lowering the local fund assignment again, by revamping the system of transportation funding and, by establishing floors for aid necessary to small districts. The specter of taxpayer equity was raised as the new issue in schools during this time, and so an effort to reform property taxation was made by both the Senate and House. The 67th Legislature moved away from equalization reform but did manage to add $1.5 billion to the foundation program so that teachers received salary raises. The net effect on the local share of the foundation program actually increased, due to the rise in school district taxable values as was determined by the new State Property Tax Board. This new board was the result of the Tax Relief Amendments of 1978 which helped to establish countywide tax appraisal districts so that uniformity and equity in property values was met.

Stage 3:Policy Adoption

Adoption of a policy involves having an acceptable solution for the problem. Those solutions are grounded in different theories for decision-making. These theories can be viewed as the rational-comprehensive theory, the incremental theory, and mixed

scanning. Adoption of Texas school finance laws can be viewed under all of these theories.

The Incrementalist View

The history of school finance laws characterizes the incremental theory, which involves small or limited changes over time. Up until the late 1980s and early 1990s, there were numerous attempts to adopt a policy through small gradual changes. The "civil rights" era during the 1960s helped to spur adoption of new policy in most states including Texas. There was no mandate from any primary source that could generate change other than in an incremental manner. It was the *San Antonio Independent School District v Rodriguez* court case in 1971 that became the pivotal point which brought Texas out of the incrementalist view of school finance.

Rational-comprehensive model

Adoption of Texas school finance laws could also be viewed under the theory of the mixed scanning approach. Mixed scanning, of course, is the approach that takes in both the rational-comprehensive and incrementalist view for understanding how policy is written.

In the past two decades the rational-comprehensive model took over the policy process due to changes brought on by the courts and litigation from ethnic minority groups. The steps that the legislative took to reach that goal of adopting SB7 can be seen easily under rubric of the rational-comprehensive theory:

- The legislators were faced with the task to produce a system of finance for schools that satisfied the courts by a specific deadline before the state system of finance would be shut down.

- The Senate Education Committee was focused the goal of producing a document that the courts would approve and not on the goal of finance for education.

- The legislators planned for a constitutional amendment to meet their goal as well as a backup bill if the constitutional amendment was not passed.

- The committee utilized experts in the field of constitutional law and school finance to plan the best policy that would be accepted

- The alternative plans were discussed in committee meetings to gather support for the one plan that would be accepted by the majority of the legislators.

The result of this procedure is viewed as a rational decision, which is how the rational-comprehensive model for policy adoption occurs.

During the early eighties, the Legislature was faced with the prospect of increasing state tax rates or to curb spending by providing only necessary funds needed to carry out the current law. The constraints placed on the budget by falling revenue from taxes on gas and oil was taking a toll on all areas of the state needing money, and not just public education funding. The legislators decided to curb spending as opposed to increasing state tax rates, and they felt that reforms were needed in the education system more than just having money thrown at the system.

Mark White became governor in 1982 with the backing of teachers' organizations, which had been promised a long-deserved pay increase. The governor, during the oil price recession, responded to the recommendations of the Texas Speaker of the House, Gib Lewis, and lieutenant governor, William Hobby, by appointing a commission to study Texas public schools and to make recommendations for reform. The chair of the committee was Dallas businessman H. Ross Perot. The committee,

called the Select Committee on Public Education (SCOPE), was specifically charged with investigating the financing of education so that the legislature would have some direction in reforming the system.

The Select Committee or as it was also called, the Perot Commission, broadened the scope of its charge, held several public hearings, and did not report its recommendations until April 1984. Among the committee suggestions were an appointed State Board of Education (SBOE), and structural changes to the school finance system.

Liberal and conservative elements in the state pressured the state legislators with regard to school finance reform, tax increases at the state level, and other education issues. The *Edgewood v. Bynum* and later known as *Edgewood v. Kirby* and *Edgewood II* lawsuit, also, loomed over this legislature. What emerged finally from this special session was House Bill 72.

The legislators believed they had compromised to achieve the best solution for school finance and other school reforms with this new bill that comprised more than two hundred pages. House Bill 72 provided for an increase in state financial aid to poorer school districts while SCOPE was instrumental in structural changes in the way Texas's public schools operated. The major points of this bill[8] were:

- Changing from adjusted personnel to weighted pupil units as the basic distribution function.
- Establishing a price differential index.
- Broadening of adjustments for small and sparsely populated districts.

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[8] Walker, Billy D., and Casey, Daniel T., *The Basics of Texas Public School Finance*, (Austin: Teachers Association of School Boards, 1996).

- Using full-time equivalent (FTE) student counts for special and vocational education enrollment

- Expanding of compensatory and bilingual education allotments

- Moving to a one-line state minimum salary schedule

- Adding a teacher career ladder program

- Computing the local share of the Foundation School Program on a variable rate at a higher level than utilized after 1977

- Enhancing of the "enrichment equalization allotment" to replace SEA

- Removing from the ASF those revenues dedicated by statute as opposed to the constitution

- Deleting several programs formerly included in the FSP

- Equalizing transition aid for districts losing state aid per ADA under the law.

Several hundred million dollars were included in the bill to go to the poor districts in an effort to equalize funding to the state's schools, but opponents of the plan claimed that the changes in the state formula for funding were not extensive enough. The districts which had gone to court in the *Edgewood II* case were not happy with this bill and believed that the finance system was illegal. It still discriminated against the state's poorest school districts where children had the greatest needs. A total of 68 school districts were on the side of the plaintiff and 49 school districts became defendant-intervenors along with the state.

The State District Court found that the current system violated both Article I, Section 3 ("equal protection") and Article VII, Section 1 ("efficient system") provisions in the Texas Constitution. By 1988, a state court of appeals had reversed the district court

decision in this case by a 2-1 vote. This court found that the school finance system was constitutional but it did need reform. The plaintiffs did appeal to the Supreme Court of Texas and on October 2, 1989, it unanimously reversed the appeals court and affirmed the district court's decision. That court established a deadline of May 1, 1990 for the Legislature to implement a new school finance system.

In the regular legislative session in 1989 the state of Texas implemented its first guaranteed yield program, which required the state to guarantee a certain amount of money to school districts that taxed above the rate required to receive state funds. The state agreed to make up the difference between what the district raised and the guaranteed amount (Walker and Casey 1996). This provision was a very large incentive for school districts to raise their tax rates in order to receive more state money. In the 1989 tax year, numerous districts took advantage of this provision (Texas Research League 1996).

The legislators through Senate Bill 1019 added $450 million in funding for education above the costs of pupil growth during its regular session in 1989. This amount was not sufficient to make a broad impact on fiscal equalization. The bill[9] provided

- An increase of the basic allotment from $1,350 to $1,477 ($1,500 in 1990-91)

- The structure for replacing the cost price differential index with a cost-of-education index in 1991-92

- An increase in the career ladder allotment from $70 to $90 while repealing the education improvement allotment

- Changes to some special education student weights

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[9] ibid. p 14

- A new second-tier equalization aid formula based on tax effort (above the local fund assignment rate) and guaranteed yield per weighted pupil

- A repeal of the experienced teacher allotment

When the Texas Supreme Court announced its decision on *Edgewood II* in 1989, they declared the school finance system unconstitutional and ordered the Legislature to implement a system that "provides substantially equal access" to revenues for districts at similar tax effort by May 1, 1990 (Walker and Casey 1996). The legislators met in special sessions from February 27 to June 7, 1990. Because they did not produce a reform bill by the May 1 deadline, state District Court Judge F. Scott McCown stayed the injunction until June 1 and appointed three special masters to draw up a court-ordered plan should the Legislature fail to act. The Legislature did fail to meet the June 1 deadline but were given an extension this time of twenty days. The legislators presented Governor Bill Clements Senate Bill 1, which he signed into law on June 7, 1990. The district court then determined that Senate Bill 1 would be effective for the 1990-91 school year pending hearings in the *Edgewood* case. The changes that Senate Bill 1 (1990) [10]made were:

- It established a five-year phase-in of reforms

- It established a standard that 95 percent of the pupils would be in a wealth-neutral finance system by 1995

- It added facilities and equipment to the foundation program definition

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[10] ibid. p 15

- It established a structure for reformulating all funding elements periodically to achieve the equity standard

- It increased the adequacy of the basic foundation program

- It increased the guaranteed yield in the power-equalized second-tier program

- It raised the tax rate matched by the state in the variable ratio guaranteed yield program

- It enacted numerous accountability, efficiency, and programmatic reforms.

When the *Edgewood case* was retried in the district courts during July 9 to July 24 1990, the essential question was whether Senate Bill 1 gave each school district substantially equal access to similar revenues per pupil at similar levels of tax effort. The court concluded that the school's finance system remained unconstitutional. Some of the principal objections[11] were:

- Substantially equal access to similar revenues per pupil at similar levels of tax effort had not been achieved although such access had been improved

- The long-range plan lacked specificity and relied too heavily on prospective application of a convoluted reformulation process

- No immediate provisions were made for substantially equal access to revenues for facilities costs

The Legislature was given a deadline of September 1, 1991 to find a solution to the funding issue or do without funding from either a state or local level. The judge reminded all that the districts did hold a contract with the state and were obligated to uphold the State of Texas' Constitution.

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[11] ibid. p. 15

The plaintiff appealed the case to the Texas Supreme Court in order to get an injunction against the distribution of state aid in an unconstitutional system. The Court had to review Senate Bill 1 in order to make its determination and they also interpreted it as being unconstitutional. They stated that legislators needed to restructure the school's finance system, and they held the power to restructure by creating school districts and defining their taxing authority. As a footnote the court added the example of county equalization funds, which are decided upon by local voter authorization of a county equalization tax.

The school finance system was once again declared unconstitutional in 1991 (Thomas 1997). The Legislature responded with Senate Bill 351. This created 188 county education districts (CEDs) that consolidated school district tax bases along county lines. This bill caused the most significant and widespread increases in school tax rates in Texas history because it required that all school districts levy a prescribed tax rate.[12] Revenue raised by the CED tax was shared by all of the districts in the CED. All the local school districts within a CED would then depend on the same property wealth, taxed at the same rate, to generate local school funds. The board of trustees in each CED was to levy the tax to collect enough money for the local fair-share of all the districts in its boundaries. Almost all school districts levied a tax on top of the CED rate to maintain current revenues. The number of school districts taxing at a rate below $1.00 plummeted while those taxing between $1.21 - $1.40 increased dramatically.

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[12] Ibid. A tax rate of $0.72 was levied in the first year, $0.82 the second year, $0.92 the third year, and finally $1.00, as well as increasing the guaranteed yield amount even more to $28.00 per WADA(weighted average daily attendance of students in district) per penny in the fourth year.

The legislators tried to avoid the issue of a school property tax because people in Texas would have to vote on that issue. The legislature claimed that Article VII, Section 3-b allowed school districts to consolidate without the need to have voter consent. Some philosophical and thoughtful parts of this bill that would remain in a future bill were:

- Emphasizing facilities funding through the guaranteed yield program of assistance

- Creating the potential for average daily attendance adjustments in districts with a "significant percentage of students" who were the children of migrant workers

- Authorizing a new study of cost adjustments based on "resource cost variations" among districts

- Increasing the basic allotment of state aid from $1,910 in 1990-91 to $2,200 in 1991-92, and even higher by 1994 –95

- Providing for a technology allotment

- Increasing the yield in the second-tier guaranteed yield program from $17.90 to $28 by 1994-95, while establishing the maximum second-tier tax rate to be matched by the state at 45 cents per $100

- Imposing revenue limits on school districts, including rates for "new debt"

- Revising rollback tax rate calculations and waivers

Wealthy and poor districts challenged this new law, arguing that the plan was still not constitutional. The Texas Supreme Court agreed with the plaintiffs in the *Edgewood III* suit, saying that Senate Bill 351 created a state ad valorem tax without the benefit of an election and a tax like this was forbidden as found in Article VIII, section 1-e of the state constitution.

In 1992 the Texas Supreme Court once again ruled that the school finance system was unconstitutional. The voters in each CED did not approve the taxes, and the rate that was levied had been determined by the state. The Court determined that the combination of those two factors constituted a state property tax that is prohibited by the Texas Constitution.

The approach that the legislature used to remedy this issue was to propose a constitutional amendment so they could change the constitution. They would have the constitution fit the system rather than the schools finance system fit the constitution. The first idea was the "Fair Share Plan" which consisted of a constitutional amendment, which would require wealthy districts to give up some of their property taxes. This idea, unfortunately, did not go far. The lawmakers finally asked the voters to approve an amendment that would have abolished the county education districts and permitted statewide recapture of local property tax dollars. The amendment would also have equalized the distribution of ASF revenues, created a $750 million bond program for school facilities and established a new equity standard in the constitution that appeared lower than that established by the Texas Supreme Court in earlier *Edgewood* decisions.

Other provisions of the Fair Share Plan authorized sixty percent of school district budgets to classroom instruction, and required the commissioner of education to set limits on administrative costs. Even though the plan provided approximately $650 million for the biennium, it was still less than what was needed for expected enrollment growth.

Even though the proposal presented a high standard of equity, it appeared to dilute the fiscal neutrality standards that were engraved in the *Edgewood* cases. The final results was that the majority of the voters opposed this amendment which meant the

lawmakers were held accountable again to find the right solution. The legislators began even before the session began in January 1993 to devise a plan and/or more constitutional amendments that would meet the approval of the courts before the deadline of June 1, 1993 when all funding would come to a halt. The Senate Education Committee was committed to a bill that the court would accept nor reject. Chairman Ratcliff stated, " I'm particularly concerned when we come into regular session that if we adopt a plan which depended upon a constitutional amendment which could not survive without the passage of a constitution amendment. Then, we're flirting with doomsday by putting a constitutional amendment before the voters by May. Should the voters turn that proposition down, we simply would not be able to institute a plan in time to stop the closure of the schools. I believe it is imperative upon us to adopt a plan that at least can survive. It may be cumbersome; painful in places. It may not be pretty, but could keep the schools open come June 1, in case the constitutional amendment fail passage by the legislature or voters." [13]

These are the major legislative steps leading to Senate Bill 7 but its legislative history is also significant for this study. The pressure that the legislators was under was tremendous and although they found a constitutionally accepted plan for school finance, this study will test the positive effects it has had on property values, specifically in Dallas County.

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[13] Senate Education Committee, 1993

<u>Stage 4:Implementation</u>

Public policy is implemented primarily through a complex system of administrative agencies. This entails the funding needed to affirm the implementation as well as the agencies that oversee the policy. Texas legislation for school financing had to conform with its state constitution or change the constitution.

Senate Bill 7 and the Constitutional Amendment

When the Legislature met in 1993 and passed Senate Bill 7 (SB 7), their purpose (Senate Education Committee tape 1993) was to create a school finance system that was "constitutionally" correct. Equity and efficiency were not the overriding concern. After toying with the idea of school district consolidation -- which was quickly dismissed -- SB 7, the current "Robin Hood" system, was passed. The bill contained a "hold harmless provision" (Texas Legislative Summary 19973) which allows wealthy districts to maintain the same level of spending as they had before SB 7 was passed, but at an effective tax rate of $1.50. This was an incentive for those wealthy districts that couldn't - or wouldn't - lower their spending levels, to once again increase their tax rates. Senate Bill 7 also mandated that the wealthier school districts must relinquish their wealth to the point of allowing a maximum of $280,000 per student:

> Sec. 36.002. EQUALIZED WEALTH LEVEL.
>
> (a) Prohibits a school district, except as provided by Subsections (b) and
>
> (c), from having a wealth per student that exceeds $280,000.
>
> (b) Provides that a district's wealth per student in the 1993-1994 school
>
> year may not be less that the amount needed to maintain the amount of
>
> state and local revenue per weighted student for maintenance and

operation (M&O) of the district for the 1992-1993 school year if the

district imposes an effective tax rate for M&O equal to the greater of the

district's current tax rate or $1.375 on the $1000 valuation of taxable

property.

(c) Provides that a district's wealth per student in the 1994-1995 and

1995-1996 school years may not be less than the amount needed to

maintain the amount of state and local revenue per weighted student for

maintenance and operations (M&O) of the district for the 1992-1993

school year if the district imposes an effective tax rate for M&O equal to

the greater of the district's current tax rate or $1.50 on the $100 valuation

of taxable property

(d) For purposes of Subsections (b) and (c), a school district's effective tax

rate is determined by dividing the total amount of taxes collected the

district for the applicable school year by the quotient of the district's

taxable value of property, as determined under Section 11.86, divided by

100.[14]

The bill allowed the district several options in determining how their wealth would be

relinquished.[15] Those options were:

- Consolidation with another district

- Detachment of territory to become less wealthy

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[14] Senate Bill 7, Article 1, Section 1

[15] The most popular option used by the rich districts to relinquish the wealth has been to write a check to the state, which in turn disburses funds to poorer districts.

- Purchase of average daily attendance (ADA) credit

- Contracting for the education of nonresident students

- Tax base consolidation with another district

On May 1, 1993 the voters of the state of Texas rejected, by 36.9 percent to 63.1 (House Research Organization 1993), a proposed constitutional amendment that would authorize the Legislature to enact laws redistributing property taxes levied and collected by a school district among other districts in the state ("statewide recapture"). As the process of designing the bill began, the Legislature also would have been authorized to create county education districts (CEDs), including multi-county districts. These CEDs would have been permitted to levy, collect and distribute property taxes at a rate of up to $1.00 per $100 of property valuation; a higher rate could have been set with voter approval. The amount redistributed, either statewide or within CEDs, could not have exceeded 2.75 percent of all state and local public-school revenue.

Secondly, the voters also rejected, by 48.7 percent to 51.3, a proposed constitutional amendment that would have exempted school districts from complying with educational mandates not fully funded by the state. Third, they rejected, by 44.2 percent to 55.8 percent, a proposed constitutional amendment that would have authorized the Legislature to issue up to $750 million in bonds to finance school facilities.

SB 7 was designed for a constitutional amendment if it was adopted or not adopted. If the amendment was adopted, Article 1 provided that every CED would have a uniform 90 cents tax rate and it could not be increased above the 90 cents set in the constitutional amendment. There would be a basic allotment of $2, 470 per weighted

student for the 1993 – 1994 school year and it would increase to $2, 570 in the next school year.

Stage 5:Evaluation

Policy evaluation is concerned with the estimation, assessment, or impact of policy, including its content, implementation and effects. The many aspects of the recapture funding of SB 7 require clarification to understand its present day controversy. Texas Education Code, Chapter 42, provides the majority of the formula used to determine funding provided at all levels of revenue, and it is the TEA, that oversees the implementation of those formulas.

Texas Education Code

The local share of Tier I costs is assessed through the tax imposed by each school district. This is the basic equalization feature of the foundation program as determined by the state formulas. The greater the property wealth of the district, the greater the amount of revenue raised locally, and the lower the amount of state aid. School districts must spend at least 85 percent of the funds allotted to a special program area on direct services within that area. The calculation of each special program allotment begins with a basic allotment of $2, 396 (Texas Education Code (TEC), Section 42.101). The basic allotment is increased by a cost of education index (CEI) designed to reflect differences in resource costs that are beyond the control of the district (TEC, Section 42.102) and is further adjusted for small and mid-school districts (TEC, Section 42.103). The result of the adjustments is referred to as the "adjusted allotment" and these amounts range from $2,487 to $4,185.

The formulas used to calculate the program allotments in the first tier, except for the regular education program[16], are found in the Texas Education Code, Section 42.151 –42.156. They are as follows:

- The regular program allotment is calculated by multiplying the number of students in the average daily attendance (ADA) by the adjusted allotment. Attendance is taken daily during the school year. The count of total days in attendance for all children is divided by the total days of instruction to determine the average for the year. From this average, the time students spend in special education and career and technology education is subtracted to determine regular program attendance. Unlike other educational program areas, there is no special weighted funding for the regular program other than adjustments to the basic allotment.

- Students with disabilities and other special needs are served in special education instructional arrangements. There are twelve arrangements, which are distinguished by the length of daily service or the location of service. Students served in a special education arrangement are funded at a higher level than those in the regular program. The weights range from 1.7 to 5.0 times the regular program adjusted allotment amount. These students generate the higher funding level for only the portion of the day in which they receive the special services.

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[16] Texas Education Code, Chapter 42, Subchapter B

- Career and technology education programs are funded 37% higher than regular program funding. The extra funding is generated by contact hours for any student who enrolls in one of the authorized courses that has been identified as eligible for weighted funding.

- Compensatory education funding is provided for students who may not be performing at an acceptable level. Funding of these programs is based on the number of low-income students in the districts. The formula uses the best six months of the preceding year number of students who are eligible for free or reduced-price lunch under the national school lunch program. The allotment level per student is 20% of the regular program adjusted allotment.

- Students who are limited in their proficiency in English are eligible for instruction in a bilingual or English as a second language program. The student's attendance generates an additional 10% in funding if the services are provided.

- Those students with special talents or gifts can generate an additional 12% in funding if they receive special services.

The local share of the first tier is determined by multiplying the preceding year's total tax base, as determined by the Comptroller of Public Accounts, by a rate of 86 cents per hundred dollars of value (TEC, Section 42.252). The resulting local share is subtracted from the formula cost of the first tier to determine the amount of state aid. The State Board of Education (SBOE) determines a payment rate per student from the Available School Fund (AFS). This is generally described as the "per capita" rate and is

based on expected income to the fund during the year. Payment of the per capita amount is a constitutional requirement. If the local share of the first tier is greater than the formula cost of the first tier, after subtracting the per capita payment amount, then no state aid is paid.

The second "tier" of funding provides equalized access to funds in excess of the basic costs for certain services. It allows districts to choose a revenue level above that of the basic costs. It is at this point that districts choosing similar revenue levels per student have substantially equal tax effort. More revenue per student is available to districts for tax effort above that needed to fund the first tier. For this purpose, the count of students in the district is adjusted to reflect the extra expense of providing special programs. The resulting basis for second tier funding is called a "weighted" student count, since it is derived from the impact that funding weights have on the allotments in the first tier. Tax collection which exceed the local share of the first tier are divided by the tax base certified by the Comptroller for the preceding school year. This becomes the driving force of the second tier funding.

For every penny of tax effort above the first tier requirement, a school district is guaranteed $21 per student in additional revenue, up to a maximum of $1,344. The mix of state and local revenue depends on the tax base of the district. Approximately 85% of all students educated in school districts are eligible for some state aid, which means the district can access those funds through the second tier. The remaining districts can obtain more revenue for the same level of tax effort without the state funding for the second tier.

The instructional facilities allotment provides equalized finding specifically for debt service. School districts may receive state assistance for the debt service

requirements. Debt may be in the form of school bonds or lease-purchase agreements. State assistance is adjusted for the property wealth of a school district, such that a low property-wealth district has a higher percentage of the allotment paid by the state. Allotments during a given state fiscal biennium may not exceed $250 per student in the ADA. For the 1997-98/1998-99 biennium, $100 million was appropriated in each year for state assistance[17].

Educational technology is funded by the state through a formula, which operates outside the Foundation School Program. The minimum amount of the technology allotment is $30 per student in attendance[18]. Current law permits increases as set by the General Appropriations Act. Textbooks are also funded by the state for all school districts. The total cost of textbooks for this biennium, 1997-98/1998-99 is approximately $350 million.[19] The state is held responsible to pay the employer's share of retirement contributions for most teachers and other school employees. The annual contribution for this cost exceeds $700 million.[20]

Soon after SB 7 was made into law, both sides, plaintiffs-intervenors and defendants-intervenors, in the previous *Edgewood* cases challenged its constitutionality. A new plaintiff-intervenors group of 263 school districts also joined in litigation, *Edgewood IV*, with the help of the Texas Association of School Board (TASB) Legal Assistance Fund. They maintained that SB 7 did not make suitable provision for public education as required by the Texas Constitution.

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[17] Texas Education Code Chapter 46.
[18] Texas Education Code, Sec. 31.021(b)
[19] Ibid., Sec. 31.021
[20] Texas Government Code Chapter 825

The groups were divided into four major categories with their attacks:

- Appellants from property-poor districts argued that school funds were not efficiently or fairly distributed.

- Appellants from property-rich districts primarily argued that SB 7 unlawfully transferred local tax money to other school districts.

- The Guadalupe Gutierrez group of appellants argued that students had a right to school vouchers.

- The Somerset Independent School District group of appellants complained about the distribution of excess county education district funds.

State District Court Judge Scott McCown held that the SB 7 law was constitutional except for its provision for school facilities. On January 30, 1995, the Supreme Court ruled SB 7 constitutional in all respects including the bill's provision for school facilities. The seven public education goals articulated in SB 7 had been met; that children who live in property-rich districts did have substantially equal access to funds necessary for the general diffusion of knowledge; and that the Texas school finance system was therefore constitutionally efficient.

The Supreme Court went further to say that an efficient system does not require equality of access to revenue at all levels of funding as long as such revenues are used to supplement an already financially efficient system. If the school finance system provides districts with sufficient funds to meet SB 7's seven public education goals, then school districts can spend as much money as they can raise up to $1.50 per $100 property valuation, the state-imposed cap on taxes.

The court rejected the property-poor districts' argument that SB 7's school finance system was inefficient because richer districts, based on their higher property values, were permitted to raise up to $600 more per penny of tax effort than property-poor districts. The courts responded that the state's duty to provide districts with substantially equal access to revenue applied only to the provision of funding necessary for a general diffusion of knowledge. As long as property-poor districts could provide for a general diffusion of knowledge under SB 7's school finance plan, SB 7 was constitutional.

Texas Education Code as an authoritative agent imposes various limits on a local district's tax rate:

- $1.50 is the maximum rate for maintenance and debt combined, unless voters approve a higher total rate to pay for new debt service or for debt service existing prior to September 1992;

- $0.50 per $100 is the top rate allowed for new debt service;

- Even with voter approval a district's total rate may not exceed $2.00 except to pay for debt service existing prior to September 1992.

Both the property-rich and property-poor districts argued against the $1.50 tax rate cap. The court rejected the property-poor districts' arguments that allowing property-rich districts to tax at effective rates above the state-imposed tax rate cap of $1.50 created a "Tier III" of unequal enrichment, thereby further increasing the disparity of wealth among districts. The court responded that "special laws" permit school districts to tax above the state-imposed $1.50 tax rate cap if they need additional taxes to pay off their bonded indebtedness. This does not create a constitutional issue as long as all districts

were provided with sufficient revenue to satisfy the requirement of a general diffusion of knowledge.

On the other hand, property-rich districts had argued that the state's $1.50 tax rate cap constitutes a statewide ad valorem tax, which is prohibited by Art. 8 Sec.1-e of the Texas Constitution. The court noted that a local property tax becomes a statewide tax when the state's control over the tax leaves no discretion to local authorities as to how the tax is imposed. Since the districts had a range in which they could set their tax rates, the $1.50 tax rate cap does not amount to a statewide tax. If all the districts' tax rates did approach the cap, then the court could find the cap unconstitutional because at that point, the districts would lose "all meaningful" discretion in setting their tax rates. The court did observe that eventually some districts may be forced to tax at the $1.50 rate just to provide a general diffusion of knowledge.

The $1.50 tax rate cap applied to the tax rates levied to pay for maintenance and operations (M&O) and to pay for bonded debt (I&S). About 50 districts have nominal tax rates at or above the $1.50 cap and another 172 districts have tax rates above $1.40, out of the state's 1,046 districts.[21] Increasing the amount of state funding of facilities would however allow districts to maintain tax rates lower than the $1.50 cap.

Property-rich districts went on to argue that the state's heavy reliance on local funds meant that the state was not upholding its responsibility for providing education. The court found that the Legislature had not violated its constitutional duty to provide a suitable public school system. It recognized that the Legislature held the right to determine what suitable provision should be for schools, and that the allocation of state

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[21] *House Research Organization*, Texas House of Representatives, May 1, 1995.

aid as determined in SB 7 did not reflect an abdication of the state's responsibility. The courts did warn that if the Legislature substantially defaulted on its responsibility such that children were denied access to that education needed to participate fully in the social, economic, and educational opportunities available in Texas, the "suitable provision" clause in the Texas Constitution would be violated.

Since SB 7 gave property-rich districts other options besides paying for the education of nonresident students, their argument that they were compelled to pay for non-resident students from property-poor districts was not sustained by the court. Previously the Supreme Court held in *Love v. City of Dallas*, 40 S.W.2d 20 (Texas 1931) that the Legislature is not allowed to compel school districts to pay for the education of nonresident students. Senate Bill 7 (SB 7) offered districts options for sharing wealth and therefore did not violate *Love*.

The court went on to reject the property-rich districts' argument involving the lending of credit or grant of public money. Other points that were rejected were:

- the delegation of power to the education commissioner,
- judicial review and due process,
- impairment of contracts,
- noncontiguity of school districts,
- the Voting Rights Act and Equal Protection Clause,
- whether SB 7 is a local or special law.

The court responded to the state's argument against the district court ruling that school facilities were not adequately funded by citing evidence that SB 7 ensured that

districts could meet both their operations and facilities needs for a general diffusion of knowledge.

The court went on to state that " if the cost of providing a general diffusion of knowledge rises to the point that a district cannot meet its operations and facilities needs within the equalized funding program, the State will, at that time have abdicated its constitutional duty to provide an efficient school system. From the evidence, it appeared that this point is near."[22]

The Senate and House both had a version of House Bill 1 (HB 1), a general appropriation bill, that provided state funding for facilities for the fiscal year of 1996-97. The House version included $170 million to build new or renovate existing classrooms while the Senate version had $270 million to do the same. SenateBill1 of 1995 also totally revised the Texas Education Code and, in doing so, reversed the trend of centralized authority by returning the decision-making power to the local school districts. This gave a positive attitude to the property-rich districts, which believe that the sway away from the state authority as in SB 7 may alter future decisions and provide less state mandates, and more control for the local district.

The Participants

The policy process is not complete until the participants have been discussed in greater detail. The participants in policymaking are the visible and hidden ones (Kingdon

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22 *Edgewood ISD v. Meno (Edgewood IV)* Supreme Court judicial decision January 30, 1995.

1984). They can also be referred to as the official and unofficial participants [23]. The legislators are the primary participants since it is their duty to "legislate", to enact laws that govern people. In doing so legislators participate in the formation of public policy. The lieutenant governor and the speaker of the Texas house are the legislative leaders who by their ability to structure key committees, to choose the chairs of those committees, and to appoint members of conference committees help shape the outcomes of public policy. They are not, however, alone in this process; there are other official and unofficial participants. The "official" participants include the governor, administrative agencies like the Texas State Board of Education (SBOE), and the courts, while the "unofficial" participants are interest groups, political parties, the media, and private citizens.

Each and any of these groups can act as an impetus or as a constraint for policy formation. As an impetus, the particular problem can be pushed into more active consideration and made more important for public attention. As a constraint, a problem can be made to vanish from the agenda or replaced an alternative that fits the groups' focus. While the legislators play the major role up to the implementation stage, the complex system of administrative agencies called "Bureaucracies" intercedes with the implementation. The pitfall for bureaucracies is that they are given only rudimentary forms of policies because the legislature could only agree to a nebulous form of the policy. They must decide on the ways and means the policies will be implemented. It becomes their discretion how to administer the agency that implements the policy or the

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[23] Dye, Thomas, *Politics in States and Communities,* p.454,

policy itself. It should be reminded that bureaucracies do more than implement policy; they also are policy makers. It is easy to elucidate how a bureaucracy like the Texas State Board of Education (SBOE) came to implement the policies enacted by the legislators and make their own policy.

In 1929 SBOE expanded from a three-member board consisting of the Governor, the Secretary of State. and the Comptroller to a nine-member board appointed by the Governor. The Gilmer-Aiken Act of 1949 converted this board to an elected board, yet it reverted back to an appointed board as a result of House Bill 72 in 1984. By 1989 it became a fifteen-member elected board with staggered four –year terms.

The current structure for SBOE was put into place, following approval of the referendum designed to continue with the appointed status was defeated in 1987 by the majority of the people in Texas. The SBOE represents the constituents of all state board districts to the Texas Education Agency (TEA) as policy makers. Duties of the SBOE include:

- Adoption of recommended textbooks

- High school graduation requirements

- Management of the Permanent School Fund

- Educator preparation

- Certification for schools

- Writing rules and guidelines for implementation of statutory requirements enacted by the legislature

The Commissioner of the state board is appointed by the Governor with nominations from the state board and consent of the Senate to a term of four years. The

Commissioner administers TEA and its staff. The TEA following the charge of SBOE is responsible to provide to the districts:

- Curriculum and technical assistance

- Accreditation for a school district

- Research and information programs

- Oversight for compliance with federal and state guidelines

- Channels for the distribution of state and federal funds

Local school districts are considered to be independent yet TEA's leadership and regulatory authority has been over-encompassing, starting primarily with House Bill 72 in 1984. It was the subsequent passage of Senate Bill 1, Senate Bill 351 and ultimately Senate Bill 7 that pushed even higher the level of local accountability to the state. Many districts rejected those moves and pushed for a decline in that direction.

The political party's ability to influence educational policy made its mark on the agenda for education policy within six months of the Republican-ran state government in 1995. Legislation that followed Governor George W. Bush's election has gradually decreased the responsibilities of the SBOE. The notion of decentralization is of great importance to many of the districts. The staunch Republican opposition to reform legislature in recent sessions of the legislature reflects the fact that Republican legislators tend to represent constituencies with school districts that were destined to lose property tax revenues under the various Robin Hood plans pushed through the legislature.

The governor's role in public school policy traditionally has been to mold public opinion and to broker the compromises that may be necessary to pass school legislation. Governor White clearly was a major player in House Bill 72. In 1990, Governor Bill

Clements used the threat of a veto to insist that the legislature give the governor the power to appoint the commissioner of education. Governor Ann Richards was less successful in shaping policy alternatives. Often, her recommendations were not followed by legislative leaders, and her efforts to persuade voters in 1993 to approve a constitutional amendment that would have authorized the County Education Districts (CEDs) the power to transfer property tax revenues were unsuccessful.

Judges make public policy to the extent that they influence decisions in other courts within the judicial system. This idea is problematic for a democratic theory that places the power to make law only in the people or the elected representatives. The courts have nonetheless, made fundamental policy decisions vital to the preservation of freedom and equality. The power to declare a congressional act void because it conflicts with the Constitution is the power of judicial review that the courts have over the legislature and executive branch. The Constitution through its Supremacy Clause (Article VI) gives the final rule of law to the Supreme Court, which is over the state courts and can overturn a lower court's decision.

The supremacy of the courts has been a long-standing concern for our country beginning with the rulings from Chief Justice John Marshall in the early 1800s. Archibald Cox (1987) in his portrayal of the supremacy of the courts points out that, judicial supremacy for educational policy began in 1954 when the Supreme Court overturned the system of school segregation by ruling that racial segregation in public school is inconsistent with the Fourteenth Amendment[24]

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[24] "...No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State derive any person of life,

State courts are the authoritative decision-makers for issues exclusively concerning state statues or provisions of state constitution that do not involve federal law. Most education laws have the final ruling from state courts. The state courts have been a major force in changing Texas public school policy because of the legal and constitutional issues involved. The court's willingness to tackle the public school issues in part was a result of the election of a number of liberal Democratic justices and a Hispanic justice, Raul Gonzalez, during the 1980s. Presently Republicans hold a majority on the state supreme court.

Individuals or groups who seek to shape public policy through the judicial branch of government have two distinct options in pursuing court cases. They can reformulate their argument and present it to the state court after the federal courts have been unreceptive to arguments about how judicial policies should be shaped. They can also simply allow the courts to interpret the statutes for the present surroundings and lifestyles. State court decisions can only affect the people who live in that state but these courts can and have on occasions set precedence that other states courts follow. Public school financing provides a good example of policy issues that the federal courts declined but the state court tackled with vigor.

While court supremacy may lead the political scientist to believe in the Elitist [25] perspective for government, public policy may be ran by the Pluralist [26] perspective.

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liberty or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of law." *U.S. Constitution, Amendment XIV, Sec. 1.*

[25] The Elitist perspective presents a theory that all societies, including democracies, are ran by just a few "elite" members. Elite members may be the leaders of corporations, the military, and/or the national government.

Individuals in a pluralist society may not participate directly in decision making, but they do join and support interest groups[27] whose leaders bargain on their behalf in the political area. Groups participating in education finance policy who have received considerable press and public attention have been the teachers:

- Texas State Teachers Association. This association has about 95,000 member and 600 chapters across the state. It is concerned primarily with issues surrounding teachers salaries, state-wide health insurance, on-site management and equalization of funding.

- Texas Federation of Teachers. This organization's purpose is to represent educational employees in an effort to bring about improvement in wages, hours, and other conditions of employment. The organization has about 15,000 members and 40 chapters in Texas.

- Association of Texas Professional Educators. This organization is concerned with equity funding for public schools, increased funding for student programs and educators benefits and the preservation of a non-union professional environment in the public school. Their membership is approximately 51,000.

- Texas Classroom Teachers Association. The purpose of the TCTA is to promote quality service to both the student and the community by encouraging democratic

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[26] The Pluralist perspective suggests a theory that democracy can be achieved through competition among multiple organized groups and that individuals can participate in politics through group memberships and elections.

[27] Interest groups are defined as organizations that seek to influence public policy.

teacher participation in the formulation of educational policies.[28] This organization has about 27,000 members.

- Texas Association of School. The Association represents the largest group of publicly elected officials in the state (more than 7,000 school board members) who preside over combined expenditures of more than $18 billion annually, employ more than 400,000 people, and serve over 3.5 million Texas students.

Local school boards govern TASB through the Association's Board of Trustees, an annual Delegate Assembly (which serves as TASB's general policy making body), and a Grassroots Advocacy Process used to develop and create the Association's Legislative Program. Policies and decisions made through Grassroots Advocacy and by the Delegate Assembly are translated into action by the TASB Board, a 43-member body made up of school board members representing every region of the state. TASB opposes unfunded mandates and supports fully funding the actual cost of an accredited program through the Foundation School Program. TASB supports increasing the equalized wealth level above the current $280,000 per student in weighted average daily attendance with a corresponding increase in the Tier II level to maintain current equity standards. TASB supports a state guarantee of existing school district debt above the current $1.50 Tier II cap.

The Texas State Teachers Association and the Texas Association of School Boards are two of the most politically active interest groups participating in school finance. TSTA helped to elect Governor Mark White in 1982 and helped to see his

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[28] Patricia Williams and Carl Harris, "Professional Organizations" in *Education in Texas.*

defeat in 1986 when the governor's promises for higher salaries was put under requirements for literacy test for the teachers. The perceived ability of this organization and other teachers' organizations to deliver votes to endorsed candidates and to punish their enemies at the polls makes politicians pay attention to their needs and concerns. TASB clout for influencing policy comes from its tie to the teachers as well as the local community.

Ethnic groups also are important players in education policy. Instead of seeking attention from the legislature in the past has not been profitable, so these groups have sought redress in the courts. The Mexican American Legal Defense and Educational Fund (MALDEF) played an instrumental role in the litigation of the Edgewood cases.

The Political System

Harmon Zeigler and Karl Johnson (1972) examine the complex interplay among the characteristics of the Texas political system. Their model can be used to bring attention to the attitudes and behaviors of policy makers like Senator Bill Ratliff, who is the Education Committee Chairman, and the activities of interest groups like MALDEF, whose actions have a direct impact on the educated and the educators. Their legislative model, however crude statistically, showed that the legislator's leadership position, and membership in the house or senate were important in explaining educational issues. Also, the legislator's income and liberal/conservative idealism play a major role. Traditional placing of conservative/liberal position[29] on scope of government remains with their model. Thomas Dye presents his model for explaining educational policies by

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[29] Conservatives support the original purpose of government for maintaining order while liberals support government actions in promoting equality in school issues.

suggesting that economic resources are an important determinant of a state's willingness and ability to provide educational services. Most school revenues are derived from local property tax and local school boards must raise money from property taxes to finance their school. Frequently, as seen in Texas, wealthy communities have the financial revenues to provide better education for their children at lower tax rates than poor communities who have higher tax rates. This is due to the disparities in the value of taxable property form one community to the next. A Congressional Research Service study (Dye 1994) reported disparities in excess of two to one in per pupil spending among school districts in Texas as well as ten other states during the late 1980s.

Dye goes on to suggest that democratic theory assumes that schools are public institutions that should be governed by the local citizenry through their elected representatives. However, in the twentieth century school superintendents and their administrative assistants exercise more control over their schools. In practice they have assumed much of the policy making in local school districts. This puts pressure on the position of superintendents to perform well but it also tends to minimize citizen participation in education decision making. School board members and interested citizens generally believe that popular control of education is a vital component of democracy. The nation's 85,000 school board members (Dye 1994) are unrepresentative of their constituents in socio-economic background. They are more often male, white, middle-aged, better educated, more prestigiously employed, Republican, Protestant, and have lived in the country longer than their constituents.

The making of Senate Bill 7 (SB 7) does involve a complex interplay of the numerous actors of policy-making. Its actors represent the myriad of concerns from

people of all socioeconomic levels. The most dominant players are the courts and the legislative body. It is these two entities that in the end shaped the policy that will always be called, "The Robin Hood Bill". It is the pressure that the courts exerted on the legislative that forced them to focus merely on resolving the issue from a narrow perspective of doing only what would satisfy the courts. The final product was not what could be the best for providing equity of school districts, but it was what the courts would "approve" as being constitutionally equitable for all schools. The consequences of making policy under the pressure of satisfying an opposing branch of government are what the market for housing explores.

CHAPTER FOUR

THE ECONOMICS OF THE HOUSING MARKET

"... It is well accepted that housing price differentials do reflect differences in the quantities of various characteristics of housing and that these differences have significance for applied welfare analysis." A. Myrick Freeman, 1993, 367

This chapter discusses the literature on housing markets and its relationship to the consumption of public goods, namely public schools. The nature of the housing market is unlike most goods traded in the economy. A uniqueness found in this market is that those who purchase housing services presumably are willing to pay a premium for public schools that are considered better than average. This can be considered the same as when a purchaser prefers to buy a brand prescription instead of a generic one. Another important consideration for housing markets is the distinction between quantity and quality (Kain and Quigley 1976). Two identical houses in the same neighborhood may objectively be the same, meaning they have the same number of rooms, etc. They may differ, however, in qualitative terms such as the condition of fixture, plumbing, etc. This information is important to incorporate into empirical studies, because it increases the model's effectiveness in measuring the attributes of housing services.

Housing services are considered by John Quigley (1979) to be heterogeneous

goods available in a trade at a single price.[1] The principal features of housing that

distinguishes it from other economic goods are: (1) its cost of supply, (2) its durability,

(3) its heterogeneity, and (4) its locational fixity[2].

Edelman (1974) stressed the importance of assuming that the housing market is in

long-run equilibrium. If that assumption is not applied, the results would yield an

inextricable mixture of supply and demand factors that would be difficult to interpret.

These factors help us to understand the complexities that lie in research of housing

markets.

Tiebout and the Literature

Charles Tiebout (1967) developed a model of a consumer who searched for a

locale that matched her preference for local public goods and services. Tiebout suggested

that, at least at a theoretical level, a system exists in which one can obtain a market

solution to the production and consumption of local public goods. The consumer can

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[1] Edgar Olsen (1969) presented a different theory. He believed housing service to be a homogeneous commodity in order to view it in a model that followed the competitive theory for housing market.

[2] Construction costs for housing include building expensive houses, providing availability of mortgages to larger groups of people, and the sensitivity of construction and prospective purchasers financing costs to fiscal policy. The durability refers to rate of disinvestment in existing structures. The heterogeneity implies that housing units differ quantitatively and qualitatively, which means that buyers and sellers may view the housing price substantially different. Locational fixity suggests that the location of the housing units with respect to proximity to neighborhood amenities and other physical and social externalities are important market forces.

"shop" among different communities offering different packages of local public services and select the community which offers the tax-expenditure program best suited to her tastes to reside.

Economists find numerous faults in this model because they find many obstacles to consumer mobility. However, urban life is alive and well, which helps to validate Tiebout's hypothesis. Individuals can work in a central city yet they have a wide choice of suburban communities in which to reside. The quality of the local public schools tends to be of real importance in the choice of a community of residence. Accepting this to be true, the outputs of public services, as well as the amount of taxes paid, influence the choice of a community to potential residents and should thereby affect local property values.

The Tiebout model suggests a utility-maximizing consumer who weighs the benefits stemming from the program of local public services against the costs of her tax liability, and chooses a residence in a locality that provides her the greatest surplus of benefits over costs. Tiebout refers to this consumer as the "consumer-voter". This is someone who consumes from the choices of what the market offers while exercising her right to vote with her feet by not accepting a local government's policies and decisions. "Given that local revenue and expenditure patterns are generally set and not so flexible, the consumer-voter moves to that community whose government best satisfies his set of preferences. The greater the number of communities and the greater the variance among them, the closer the consumer will come to fully realizing his preference position" (Tiebout 1967, p 418).

To be specific, the assumptions that Tiebout uses are:

1. Consumer-voters are fully mobile and will move to that community where their preference patterns, which are set, are best satisfied.

2. Consumer-voters are assumed to have full knowledge of differences among revenue and expenditure patterns and to react to these differences.

3. There are a large number of communities in which the consumer-voters may choose to live.

4. Restrictions due to employment opportunities are not considered. It may be assumed that all persons are living on dividend income.

5. The public services supplied exhibit no external economies or diseconomies between communities, meaning the cost per unit of public service is constant.

6. There is an optimal community size.

7. Communities below the optimum size seek to attract new residents to lower average costs, and those above optimum size do the opposite.

These assumptions suggest that the outcome of a process by which individuals select jurisdictions will be optimal or Pareto efficient in the sense that no one can be better off without making someone worse off. Efficiency arises because (1) public goods are provided at minimum average cost, and (2) each individual resides in a jurisdiction in which her demand is exactly satisfied. By revealed preference individuals who could have moved choose not to, and thus cannot improve their economic situation. Also, it is reasonable to expect that if consumers do consider the available program of public

services, the property values would be higher in a community that provides an attractive package of public goods, namely in the case of this work, quality public schools.

Using Tiebout's model, Wallace Oates (1969) sees the individual's tax liability as the price of entry into a community. The value of a house and lot multiplied by the property tax rate is the tax liability that the consumer agrees to pay for the benefits of the public services. The present value of the future stream of benefits from the public services, relative to the present value of the future tax payment, is the important issue that Oates tries to make meaningful.

Oates' classic work has shown that capitalization of interjurisdictional differences in local property taxes and spending does occur. The result of an empirical study involving fifty-three residential communities in New Jersey suggested that local property values bear a significant negative relationship to the effective tax rate and a significant positive correlation with expenditure per pupil in the public schools.

From Oates' viewpoint, if a community increases its property tax rate in order to expand its output of public services, net rental income to property owners may increase. If consumers do consider the benefits of public goods and services, property values are expected to be higher in communities that offer more attractive packages of public goods. The consumer chooses a higher level of consumption of public output, and tends to bid up property values in communities with high-quality programs like good schools. Some important variables (Oates 1969) to consider when specifying the determinants of property values, of course, are tax rates and the output of public services. Other variables are accessibility of the community to the central city, and the physical attributes of the

property. Property values would be expected to vary inversely with the distance from the central city, and the number of favorable physical attributes varies proportionately with property values.[3]

Property Taxes

School districts depend on property tax for funding approximately 50% of their budget and, if property tax alters the housing consumption choice, inefficiencies with the Tiebout model may exist. However, Caroline Hoxby (1998) shows that school districts respond to people's preferences for better education and, in turn, that those preferences raise or keep property values high. She argues that competition among school districts benefits both students and taxpayer by giving incentives to residents to maintain effective and efficient schools. This provides a mechanism whereby housing prices reflect the value-added benefits of the local public school. As the value-added associated with the

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[3] Many of the variables employed in this hedonic analysis are:
- The living area in square feet for a measure of size
- The age of the property as an indicator of the state of repairs needed
- Income level as a proxy for intangibles such as physical charm or attractiveness. Higher income families will probably select higher-quality residences in more desirable neighborhoods.
- The median family income of the community or census block group as representative of the intangible aspects in a neighborhood.
- The effective tax rate as a fiscal variable. This is the nominal rate times the assessment ratio. This should provide a better measure of the true rate at which property is taxed locally.
- The independent School districts and elementary school attendance zone mean test scores for students as an output measurement. These test scores can be weighed against the mean scores in the bigger county locale.
- Expenditure per pupil as a proxy variable for the level of output of educational services. The quality of an independent school district should vary directly with the expenditure per pupil.

school district rises, the district becomes more desirable because parents with school-aged children are attracted. As the demand for houses rise, the price of those properties rise, and the administrators of the school district will offer successful education programs without significantly higher costs. Residents without children also benefit from the higher prices for their houses as well:

- All residents have an incentive to monitor the local public schools and see that they provide a good education.

- The incentives are automatic. No statewide agency has to assign penalties to that local district. Each resident has an incentive to support or change the status quo.

- The process is decentralized. There is no need for a single, unanimous curriculum standard. As long as the majority of the families in the district find their school program desirable, house prices will be maintained.

Since schools are allocated a budget out of local property tax revenue, the school administrators must present a case for the school needs to the local school board and local residents each year. Property values in the district will rise due to capitalization if the programs submitted have proven to be successful. If the district's program shows signs of deterioration, usually in the sign of low student achievement scores, the property values will fall. The property tax revenue will be lower than in the previous year if tax rate is kept the same. Maintaining the school district's budget with lower revenues from taxes without changes in programs offered becomes extremely difficult. An

administrator who wants the proposed school budget to pass has an incentive to follow the property owner's preferences when planning the school's program.

School districts strive to provide successful programs so that their tax base will continue to be maintained or will rise. Hoxby argues that the good incentives of local property tax promote beneficial competition among schools. When school districts have to compete with one another to attract residents they tend to offer programs that are successful. This is optimal regulation[4]. Using local property taxes as a major source of school funding gives incentives for the residents and the school administrators to ensure that schools improve.

In order to compete successfully, school districts must provide programs that are acceptable to the residents. A statewide system of funding could not easily duplicate these successful programs. It is a funding that speaks to the wishes of the local residents, not for the entire state, because of differences in programs that are offered. As Hoxby explains, it is not possible to maintain the good qualities of local control without local funding to provide the incentives.

Local property tax systems can encourage families who place a high value on education to sacrifice purchasing other consumer goods in order to buy a house in a school district whose programs are believed to be better. A family would be willing to pay more for a physically identical house. That extra amount is the amount that would be spent on education. This is how local property tax systems accommodate such families.

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[4] The process known as "optimal regulation" has the same effect for school administrators as capitalization has for residents. This idea of "optimal regulation can be observed in studies done on publicly owned utility companies.

The family's education preferences are accommodated with a local, not statewide, tax system. Statewide tax systems impose a greater burden on families who highly value education. Homeowners are subject to pay more property tax in high wealth areas that had good school quality, and also, pay the statewide tax for education.

Joseph Stiglitz (1983) outlined the implications of the theory that individuals choose a community based on the provisions of public goods. He concluded that it is only under very special and unreasonable assumptions that the process of individual choice among communities, leads to Pareto optimality[5] as believed by Tiebout. Pareto optimal provision of a public good such as education occurs at an output where the sum of consumer's marginal values equals marginal social costs. Therefore as the number of consumers increase, theoretically, the total output of the public good should also increase. This could happen if the ordering preferences of the consumer were all the same. This is not the case because school quality may not be a preference for the consumer. To assume that every consumer has the same ordering of preference would be unreasonable. We would have to make that assumption if we were to reach Pareto optimality. It is necessary, however, that we use the most logical and statistically correct procedures to measure that behavior. This study will accept the Tiebout hypothesis and assume that the local public good for schools is Pareto optimal.

It is best to recognize that property values are not easily treated as stable assets for the purpose of taxation, since the changes that occur in taxes are the means by which property values become destabilized. To capture the true property tax burden on a

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[5]The basic premise of Pareto optimality or efficiency is that no one can be made better off without making someone else worse off.

family, it is necessary to divide a family's tax payment by the value of only its physical property. This is an area that cannot be captured due to the notional parts of the property. Any tax that is redistributed to school districts through a "guaranteed tax base/tax yield" formula gives less money to districts whose property values contain these notional parts. These formulas measure property tax base per weighted pupil.[6] School districts that have attracted residents that have high investments in education will get less state revenue. The property is worth more per pupil than districts that have not worked hard to attract people with high investments in education.

Families with high education preference can opt to live in districts with relatively average schools and send their children to private schools. The money saved from not buying property with notional parts can be used for the tuition of private schools. A higher tax burden is still placed on those who do opt to live in more expensive neighborhoods for perhaps other preferences than education for their children.

The state of Texas uses "flat grant" or "foundation aid" to redistribute revenue among school districts. This does not place higher true marginal tax rates on districts whose families tend to value education highly. Marginal tax rates are the true tax rate on the marginal dollar spent to make a higher investment in education. Foundation aid systems are more like infra-marginal taxes for redistribution because they do not distort a family's behavior in choosing a school district as the marginal tax rate would do.

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[6] Walker, Billy D. and Casey, Daniel T. The Basics of Texas Public School Finance. Sixth ed. (Austin, TX: Texas Association of School Boards; 1996) , 43-55.

From the study done by Hoxby (1997), we know that local control is more effective in a metropolitan area where school districts are smaller relative to the size of the metropolitan area and the enrollment is spread more evenly among school districts. An area like Dallas County offers a comparable set of alternative school districts. The choice of school districts that a family selects can be more meaningful in understanding capitalization and optimal regulation mechanisms that may be at work. However, many families have other reasons for being in a school system. Those reasons could range from the need to be close to bus routes, having income limitations or numerous family concerns that are not associated with education. The choice is not always due to education preference.

Capitalization

Different economic theories of property taxes have their own prediction on how property taxes are capitalized. Capitalization of property taxes means that changes in the tax payment stream affects house prices over time. George Zodrow and Peter Mieszkowski (1983) review the literature on the incidence of the property tax. John Yinger (1982), on the other hand, developed a model to derive a household's bid for housing to show that the amount a household will pay for public services is based on the local jurisdictional level of services and taxes.

The degree to which the property tax is a distorting tax on capital is to some extent determined by the degree of capitalization If property tax differentials are reflected in the prices of otherwise identical properties, the tax differential, is said to be capitalized. Full capitalization occurs when the prices of properties, *ceteris paribus*,

differ by the full present value of the property tax differential. When a property tax change is fully capitalized, the selling value of the asset is reduced by the present discounted value of the tax. Under full capitalization, the owners of the property at the time of a tax change bear the full burden of the tax. Information on the degree to which property taxes are capitalized is useful in determining whether local decision making will lead to an efficient outcome. For instance, when considering school quality outcomes[7], property taxes can affect the price of houses in two ways. It can depress house values in some geographic areas, and it can be capitalized into house prices when it deviates from the average tax rate. This means that a community, which has property taxes at a higher rate, will have lower property values. Communities practice interjurisdictional capitalization when one locale has high property taxes and low property values while another locale has the opposite. This leads to the differences in funding local public works (public schools).

The classic work of Oates (1969) has shown a substantial capitalization of interjurisdictional differences in local property taxes and public spending on the median price of a single family home. The results of Kenneth Rosen (1982) attempt to combine both the interjurisdictional comparison and the property tax change literature. His findings suggest that the impact of state legislation led to a substantial differential

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[7] Outcomes are considered to be issues and plans surrounding high student academic achievement.

reduction in property taxes between jurisdictions.[8] The empirical analysis of this work tests the impact Senate Bill 7 (SB 7) on property differentials

Zodrow and Mieszkowski present the "benefit view" in opposition to the "new view" of property taxes. The benefit view integrates the local property tax in a Tiebout framework of perfect consumer mobility and competition among local governments (Hamilton 1976). The new view suggests that capital owners bear the burden of the property tax and thus the system of local property tax is a progressive tax on capital rather than a benefit tax (Zodrow and Mieszkowski 1983).

Bruce Hamilton (1976) assumed that consumers reveal their preferences for local goods through their choice of residence. This assumption led to the benefit view. He developed a model in which the excess of local public "benefits" over tax liability caused shifts in the demand curve for different residential property. He went on to argue if the system of communities are homogenous[9] with respect to house values, the property tax can be seen as a system of average cost pricing for public services. Hamilton also believes that property taxes are fully capitalized into land values, since land is in fixed

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[8] The theoretical model for interjurisdictional effects was developed by J. Vernon Henderson (1988). A model from his earlier works showed that in a metropolitan area with differing fiscal jurisdiction, if there is to be any commuting that has a heterogeneous mix of incomes within the community, net house prices must vary between jurisdictions. He argued that there are two types of consumers, and three types of communities high, low, and mixed. He went on to argue that each consumer type consumes the same amount of housing no matter where she lives and that the level of public services is the same in each community and one can isolate pure tax effects.

[9] Homogeneous communities are achieved through zoning requirements. Households are required to consume a minimum amount of public services, and the property tax is equal to the cost of providing those services.

supply. Expensive housing should cost more to produce if its fiscal advantage is

capitalized into land values, and the following relationship should hold if property tax

was converted to an efficient price for public services:

$V + TX = C(H) + C(LPS)$, where V equals the value of the house; TX equals the taxes;

$C(H)$ equals the cost of providing the house; and $C(LPS)$ equals the cost of providing

local public services. Therefore, Hamilton argued, that consumers get the services they

pay for and no horizontal equity exists in his model when full capitalization occurs.

Mieszkowski (1972) argued that capital owners bear the burden of the property

tax, therefore, the system of local property taxes is a progressive tax on capital rather than

a benefit tax. The "new view" is based on the general equilibrium incidence model

developed for the analysis of national taxes. It is a model developed by A. C. Harberger

(1962) who wrote on the incidence of corporate income tax. This view does not assume

that people move among localities offering different expenditures and tax packages.

Zodrow and Mieszkowski (1983) conclude that the new view of property tax is important

in the midst of interjurisdictional competition, if the competition does not include the use

of head taxes rather than property taxes to finance local public services. The new view of

property tax is considered a progressive tax also by the fact that the non-benefit

component is taken on by the owners of the capital.

This idea also has implications for the redistribution effect of the property tax.

The property tax finances local expenditures by reducing the rate-of-return of capital in

all sectors of the economy. Yet as Zodrow and Mieszkowski argued, the new view may

lead to under-provision of local public services, and capital owners may pay more in

property taxes than they consume in services. In this sense, the capital owners are exploited.

Robert Edelstein (1974) examined the economic determinants of housing market value and property tax liability, and explored the functioning of the real estate brokerage market. The analysis of value is based on a theoretical framework whose assumptions are:

(1) In a perfect market the value for each property should be the discounted sum of the expected net value of flow of housing services generated by the property over time.

(2) The housing market is in long-rum equilibrium.

(3) The changes of relevant supply factors are relatively inelastic in the short run as compared to changes in market demand factors

(4) The utility-maximizing consumer chooses her house and its locale after weighing the net stream of housing services, including all costs to her such as operating and maintenance expenditures and local property taxes, among all her relevant housing alternatives.

In a disequilibrium context, market values will be a function of housing attributes, location variables as proxies for accessibility and neighborhood-local services and property tax liabilities. $V_i = f(C_i, l_i, t_i, TX_i...)$ $i=1,...n$:[10]

V_i == the market value for the ith house

C_i ==a vector of the value relevant housing attributes of the ith house

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[10] Myrick Freeman (1993) uses the same basic model.

l_i = a vector of the relevant neighborhood location variables, such as the quality of

schools

t_i = a vector of the relevant accessibility variables (distance to work) for the ith house

TX_i = the tax liability accruing to the owner of the ith house

Interestingly, Yinger (1983) points out in his theory that the Tiebout hypothesis is

lacking the importance of analyzing capitalization. He indicates that Oates (1969)

predicts that local services and property taxes will be capitalized into housing values,

while Hamilton (1975) predicts the disappearance of capitalization. Yet, neither of these

authors fully specify the market for housing and local services which Yinger feels is

important for a complete analysis. His paper combines models of the housing market and

of the voting process with the analysis of capitalization.

Yinger's work shows, that under certain conditions capitalization, is a

characteristic of long-run equilibrium and, that in the presence of capitalization,

household mobility by itself cannot generate an efficient pattern of local services. He

indicates that local voting may lead to local service levels that satisfy the standard

efficiency condition relative to a non-taxed composite good, but that local voting cannot

eliminate distortion in the housing market due to the property tax (Yinger 1982). He

goes on to show that the Tiebout assumptions do not guarantee the necessary

homogeneous community required for efficiency, nor are the standard efficiency

conditions appropriate for this body of work. He believes that the correct efficiency

conditions for local services end up distorting the housing market when local services are

financed by the property tax because capitalization occurs.

Classical theory, on the other hand, suggests that property owners should absorb the tax on the land of the property. In their combined work, Richard Arnott and James MacKinnon (1977) model the classical view of property as a uniform, equal-rate ad valorem tax to debate the incidence and excess burden of property taxes. They elaborate more on the classical view by stating that the supply of structure is perfectly elastic and the supply of land is perfectly inelastic. Income from land, under this theory, is seen as a pure economic rent and part of the taxes paid by the landowner is capitalized in the form of reduced property values. The portions of the taxes that go toward the structure of the property are shifted to a potential new buyer in the form of a diminished stock of structures in the future periods. This happens because the tax would depress the net return on investment in the construction industry.

Arnott and MacKinnon (1977) go on to utilize a general equilibrium model of residential land use in order to study the effects of property tax using John Muth's framework as one of their models. The Muth model assumes two key issues:

1. The structural density (amount of structure needed to provide a unit of housing) does not impact the unit price of a structure.

2. Due to the fact that people desire land, the price of housing increases with structural density.

The findings from Arnott and MacKinnon work indicate that the incidence and excess burden of a tax falls mostly on tenants, not the landlord.

Despite the many studies that explore capitalization, none fully agree to what degree tax differentials are capitalized into house prices. It stands to reason that in these

studies, the degree of capitalization is not constant across geographic areas and that the literature espoused here may indicate only that the higher tax rates occur because the supply of housing is more inelastic or simply flawed in the empirical work. Therefore, a study, such as the one in presented in chapter five, gives an added dimension to the literature because it uses geographical illustrations to present findings of public school finance on housing values.

Hedonic Prices

Hedonic prices are defined as the implicit prices of the characteristics of differentiated products. The first scholars who wrote on hedonic price theory were Louis Court in 1941 and Jan Tinbergen in 1951 (Bartik 1987). Tinbergen was able to show that utility and production function parameters may be recovered from estimated hedonic parameters. Zvi Griliches (1971) explains hedonic as being an approach to the construction of price indexes based on an empirical hypothesis, This hypothesis asserts that the multitude of models and varieties of a particular commodity can be understood in terms of characteristics of the commodity. These characteristics in the housing market could include, as an example, such things as "size," "number of bathrooms," "swimming pool," or "wet bar." He further states that new "models" of commodities may be viewed as new combinations of old characteristics. In its parametric version, this construction of price indexes represents a good functional fit for explaining the relation between prices of different models and the level of their characteristics. It can be expected that the relative and absolute prices of the commodities' components may change.

Griliches (1971, 5) answers three fundamental questions on hedonic price construction.

1. What are the relevant characteristics?

2. What is the form of the relationship between prices and characteristics?

3. How does one estimate the "pure" price change from such (hedonic) data?

To answer the first question he warns against the use of variables like income of the buyer of a house, which is not a direct characteristic of the house to be purchased. The characteristic theory he engages is that of the overall market for housing, not a specific commodity. A specific commodity should not be used to determine which model is best to predict which house will sell better given the dollar constraints.

To answer the second question, on the relationship of prices and the commodities' characteristics, he argues that its empirical test should employ a semilogarithmic functional form. This implies a rising supply price per unit of each component. He answers how to predict the "pure" price change by estimating the model:

$$Log\ P_{it} = a + \Sigma b_k\ X_{kit} + V_t + e_i$$

Where X_{ki} stands for the quantity of the kth characteristic in the ith model in year t, V_t is the common "year" or "pure" price change effect and e_i is a "model" effect, the effect of other "left-out" variables assumed to be independent of time and other X's.

The estimate of the time dummy coefficients will be unbiased only if the Σe_i for a "new" model effect just equals the Σe_i for the "old" model effect This, of course, means

that all the unexplained variation in the error term was matched in both the old and new model. A weighted regression would be helpful in solving the problem of comparability. The time dummy model helps us to ignore the problem of multi-collinearity among the various controls used in the model.

The standard econometric method by which hedonic prices are determined involves regressing the set of relevant characteristics on the explicit price of a product. If done properly, the implicit (or hedonic) price of each of the relevant characteristics can be determined.

Sherwin Rosen (1974) provides a theoretical interpretation of hedonic prices. He developed an empirical methodology for estimating demand and supply parameters if no explicit solution for the hedonic price function is available. Rosen examined how to estimate a consumer marginal bid function for a characteristic given estimates of the commodity's hedonic price function. The model assumes that only one unit of the commodity is purchased. This function gives information about consumers because in equilibrium a consumer's marginal bid for a characteristic equals the marginal price of the characteristics at the consumer's chosen commodity type. Rosen explains that at equilibrium the consumer expenditure function (θ) will be equal to the firm's offer function (Φ).[11] This results in a market clearing implicit price function $p(z_1, z_2, ...z_n)$, or the hedonic price function.

A consumer expenditure function (θ) is determined by the consumer's willingness to pay for various combinations of characteristics $(z_1, z_2, ...z_n)$ that the firm is willing to

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[11] The firm in this instance is the seller in the housing market.

accept at a constant level of profit. Therefore, in equilibrium, maximizing buyers and sellers are perfectly matched, and the price function $p(z)$ will equate market demand with supply $(Q^d(z) = Q^s(z))$.

Rosen (1974) also analyzed the estimation value as a standard identification problem caused by demand and supply interaction. Under the theoretical model of perfect competition the market is cleared. Dennis Epple (1987), as well, looks at the identification problem. He found, in general, the demand function for product characteristics cannot be consistently estimated by OLS, and that market equilibrium resulted in a matching of characteristics of demanders and suppliers. This matching, however, restricted the use of buyer and seller characteristics. Rosen further points out there are many problems defining a market clearing price function if sellers alter, both, the quality characteristics and the quantity of their products. The differential equation defining $p(z)$ is nonlinear and it may not be possible to find a closed solution so he offers an alternative procedure.

This alternative method relies on a two-step regression procedure which takes into account both the individual differences (α) and firm specific differences (β). Examples of α and β can be income differences and technology differences, respectively. The α may vary person to person but are not related to the characteristics of the product. At the same time, β may vary firm to firm and not relate to the characteristics of the product. The first stage of the regression procedure involves estimating the implicit prices $p(z)$ without regard to the vector Y_1 for α and a vector Y_2 for β. The second step uses the resulting estimated implicit prices in a similar regression that includes both α and β.

The resulting estimations present a garden-variety identification problem with four cases to consider (Rosen, 1974, 50):

1. There is no variance in β and cost conditions are identical across firms.

2. If buyers are identical, but sellers differ, then single cross-sectional observations trace out compensated demand functions.

3. If buyers are identical and so are sellers, offer and value functions are tangent at a single point, and only one quality appears on the market. The observations degenerate to a single point, therefore, no product differentiation or problem exists.

4. In general there is both a distribution of buyers and another distribution of sellers.

Both vector Y_1 and Y_2 have nonzero variance, and the usual identifying rank and order conditions apply. A necessary prior condition is that the estimated hedonic price function be nonlinear at stage one. If this estimated price function is linear, other estimated hedonic price functions are constants, independent of qualities traded, and display zero variance across the sample observations. Linearity is unlikely however, as long as there is increasing marginal cost of attributes for sellers and it is not possible to untie packages. This works best if many products are actually traded.

Recent works on housing values and schools

Jeffery Guilfoyle's (1998) dissertation on Michigan housing market in light of their funding policy reflects the Tiebout hypothesis. He used Michigan's school finance reform to generate new estimates of the effects on interjurisdictional differences in property taxes and spending levels on house prices. In this sense, his work is similar to

the study presented here. Just as Senate Bill 7 (SB 7) changed school district's funding to

allow recapture of local school district wealth over $280,000 per pupil for property-poor

districts, Michigan's policy also changed the funding formula (Guilfoyle 1998). The

property tax share of school operating revenues was reduced from 66 percent during the

1993-94 school year to 32 percent in 1994-95. State sales tax from 4 percent to 6 percent

to replace the lost revenues. The state switched from a district power-equalization

method to a foundation grant approach for allocation of funds to the school districts.

Michigan had suffered the same wide variation in school district property tax rates

and per pupil spending as Texas did before the reforms took place. The reforms in both

states provide an opportunity to determine the effects of property taxes[12] and school

spending on the price of homes.

Guilfoyle (1998) measured the degree to which the tax rate and spending per

pupil were capitalized into the sale of homes in Oakland County, Michigan. He divided

the county into three regions: urban, semi-urban, and rural. Of course, this study divides

Dallas County into elementary school attendance zones.

Since each school district in Oakland County experienced a different tax and

change in spending per pupil, Guilfoyle was able to use the differentiated effects of those

changes on the price of houses in each school district, in order to estimate the degree of

capitalization. The capitalization equation he used for empirical analysis was derived

from an asset pricing model that followed assumptions of Yinger (1982).

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[12] For the analysis in Texas, the effects of schools on property values are used.

Michigan's reform resulted in a large, one-time capital gain for existing homeowners. Those who purchased their homes after the reforms were implemented faced higher prices in the cost of homes. Guilfoyle's study indicated that the results for being a new homeowners in the absence of the reforms would be the same as the results of existing homeowners in the absence of reforms. In other words, no impact on housing values was found from the change in spending per pupil.

Additionally, the work of Eric Brunner, et al (1999) in his California study follows the same procedure as Guilfoyle in hedonic price modeling. This study suggests that public policy is effective at equalizing funding but the impact on the housing market at the school district level is not fully realized. There was no evidence of premium convergence on the prices of homes after the policy was enacted.

A study on new home purchases done in Dallas Independent School District by Kathy Hayes and Lori Taylor (1996) suggests that property values do reflect the characteristics of the neighborhood school. They sought out to test if the quality of the neighborhood school was an important locational characteristic. Their study examined the relationship between marginal school effects and housing values. Their findings indicated that homeowners reveal their preferences for higher quality schools by paying a premium for their home which Hayes and Taylor believes to be one of the most important determinants of housing prices. School characteristics for which homebuyers pay a premium is the same characteristic that economist associate with school quality, particularly, the marginal effect of the school on student performance.

This is an important study for this work because it uses some of the same data in Dallas County and it suggests that policies, which impact school effects, can have a significant influence on property values. They found no significance of school spending as an indicator of school quality for which a homeowner is willing to pay, yet their data indicated substantial differences in the willingness to pay for student achievement on standardized tests. This is also an important study because it states that homebuyers in a certain parts of a metropolitan area[13] are willing to pay for school zones with good test scores because those scores indicate characteristics of the students who live in the area. The idea of "good test scores" and the implications traditionally associated with them is challenged in the chapter on equity. The next chapter presents the data and the methodology used to test the market effects of Senate Bill 7.

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[13] This study was divided into northern and southern Dallas. It was northern Dallas that indicated this finding.

CHAPTER FIVE

METHODOLOGY AND DATA ANALYSIS

The Data and Research Questions

This chapter addresses the underlying question of whether or not changes in

funding to schools affected property values. The analysis of this question and more

specific research questions offers an in-depth study of school finance within the state of

Texas by using data from Dallas County as the example. The data comes from three

main sources:

- ◆ Dallas Central Appraisal District (DCAD) for selling prices of single-family

   houses from 1990 - 1997

- ◆ The 1990 Census Summary Tape Files for demographics and traditional

   socioeconomic variables.

- ◆ Texas Education Agency (TEA) for data on the school districts and students.

   The main analysis uses the 1998 elementary attendance zones[1] of the independent

school districts (ISD) in Dallas County to analyze the spatial variation of prices over the

span of eight years. Some studies (Brunner, Murdoch and Thayer 1999,

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[1] Variation in the attendance zones over the past 10 years did occur; however, changes
were not so drastic as to warrant the retrieval of every year's attendance zones, which
were not available for use in this study.

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Guilfoyle 1998, and Hoxby 1998) analyzed the variation at the school district level.

While it is the school district that received the funding and disburses it to all its schools, it

is pertinent to see what happens at the elementary school zone level. Large districts

similar to Dallas Independent School District have a lot of variation in prices and

attributes of homes. Analyzing a district at the elementary school level can help show

differences of property values within a district.

Dallas County school districts offer a good example of the heterogeneity that

exists among the school districts in Texas. Five districts in the county consistently have

been Chapter 41[1] districts since the current recapture system began in 1993. The

attendance zones were manually drawn into the Geographic Information System (GIS)

and properties were geocoded to merge the DCAD data. This time period, 1990 - 1997,

should provide the necessary control to understand the impact of the bill, and set the stage

for the interrupted time series analysis (Mohr 1995).

These attendance zones are analyzed for funding, academic outcomes for students

and sale prices of homes in years before the funding requirement changes and after the

changes. These funding requirements are the treatment effects that Cook and Campbell

(1979) explain in their model of interrupted time-series design. The ideal analysis would

occur at least 10 years before and after the treatment or, as in this case, before and after

Senate Bill 7. Constraints of data availability pushed this study to analyze the treatment

three years before and three years after. Other factors outside of the treatment could be

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[1] Chapter 41 is the term used to describe the districts that are defined as high-property
wealth and who are required to share that wealth with low-wealth districts. The five
districts are: Carrollton-Farmer's Branch, Coppell, Highland Park, Richardson, and
Sunnyvale.

the cause of the results seen, therefore, descriptive statistics and regression analysis will be incorporated for statistical significance.

The demographic data come from the 1990 US Census STF (Summary Tape Files). The Census data, also, have been merged with property value data using a GIS database. These data offer socioeconomic variables, including data on poverty, overall income level, and educational status by census tract. Due to the fact that the demographics of Dallas County has dramatically changed over the past eight years, and since the 2000 US Census Data are not available, more attention is paid to the elementary schools' data for measures on the population demographics.

The third set of data, the data for the school districts, including students' overall performances, were obtained from the Texas Education Agency. These data contain information on classroom-size, pass rates for the TAAS,[2] financial information on funding and expenditure, and some demographics of the elementary schools.

This study focuses on fourteen of the fifteen independent school districts in Dallas County to analyze the research questions. These school districts hold over 300 elementary school attendance zones, however, only 277 zones had sales of homes in both years (1990 and 1997). Garland Independent School District is not analyzed because it has elected to remain under the 1987 Busing Order mandated by the federal district court.[3] Therefore, it does not have elementary attendance zones, and cannot follow the same logic of analyzing property values at the elementary school zone level.

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[2] TAAS is the acronym for Texas Assessment of Academic Skills.
[3] Information obtained from the Garland Independent School District's Choice of School Manual.

The number of observations used in this analysis is 22,055. This represents 9566 observations for 1990 and 12, 489 observations for 1997.[4]

Many empirical studies (Hayes and Taylor 1996, Black 1999, Hoxby 1998) support the notion that differences in the quality of local schools are reflected in the price of a house. The neighborhoods with "better" schools have higher prices of homes, *ceteris paribus*. Based on the assumption that more funding will provide "better" schools, the questions to be asked and answered are:

Question #1.

Did fiscal equalization for school districts occur after Senate Bill 7?

    a. What outcomes can be seen in funding?

    b. Were resources equalized in all districts?

Question #2.

What outcomes can be seen in student performance?

    a. Did the performance measures converge across the districts?

    b. Within school district did SB7 have impact on performance measures?

Question #3.

What happened in real estate markets?

    a. What effect did school attendance zones have on property values before and after SB7?

        (a.1) Did capitalization equalize?

        (a.2) What is the impact on the total value of property in Dallas County?

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[4] The number of sales recorded for 1990 was 10,736 and 14, 386 for 1997. Observations were dropped due to (1) not being geocoded, and (2) missing pertinent data.

<u>Question #4.</u>

How do these questions fit into the literature on property values and public school

finance?

The Question of Equalization

The most direct answer to the question of did fiscal equalization occur after SB 7

is yes. School districts that received more funding per pupil in 1990 received less as a

percentage in 1997. The 1990 funding per pupil is the operating expenditure per pupil.

This data is from the Final 1990-91 and 1997-98 Campus Profile Report under financial

information for each campus and district. Table 5.1 shows the district funding in nominal

and real (1990) dollars and the percentage change in funding. It also shows the TAAS

pass rates, which will be explained later in the chapter.

Table 5.1 Funding per Pupil and TAAS Pass Rates by Independent School Districts*

School District	1990 Funding per pupil by District	1997 Funding per pupil by District	Change in Funding per pupil by District	1997 Funding per pupil by District in 1990 Dollars**	1990 TAAS Pass Rates	1997 TAAS Pass Rates	Change in TAAS Pass Rates	Relative Change in TAAS Pass Rates***
Carrollton-Farmers Branch	5116	6553	28.1	5334	77.8	83	6.68	23.42
Cedar Hill	3005	4672	55.5	3803	66.3	77.8	17.35	34.12
Coppell	5057	5567	10.1	4532	82.2	91.3	11.07	51.12
Dallas	3946	5637	42.9	4589	40.4	54.5	34.90	23.66
Desoto	3135	5544	76.8	4513	64.6	73.9	14.40	26.27
Duncanville	3217	5081	57.9	4136	63.5	73.6	15.91	27.67
Grand Prairie	3153	6146	94.9	5003	55.8	73.2	31.18	39.37
Highland Park	4805	5706	18.8	4645	87.3	95.6	9.51	65.35
Irving	3520	6352	80.5	5171	61.4	77.2	25.73	40.93
Lancaster	2921	5436	86.1	4425	45.5	63.9	40.44	33.76
Mesquite	2962	5889	98.8	4794	54.1	73.3	35.49	41.83
Richardson	4077	6663	63.4	5424	76.5	81.3	6.27	20.43
Sunnyvale	4141	5085	22.8	4139	73.5	95.9	30.48	84.53
Wilmer-Hutchins	3388	5956	75.8	4848	43.6	64.7	48.39	37.41

*Funding is in dollars.**Conversion to 1990 dollars using the inflation calculator on the National Aeronautics and Space Administration's (NASA) website. It calculates the Consumer Price Index using the inflation index of 0.814. ***Relative changes in TAAS scores are based on the changes from the perfect score of 100 % minus the 1990 score. (1997 score – 1990 score)/(100- 1990 score)*100

Maps 5.1 and 5.2 illustrate the spatial distribution of the 1990 funding levels and the

percentage change in funding, respectively. By comparing the percentage change to the

1990 levels (see Figure 5.1) we see a clear downward pattern. Hence, at the district level,

there is strong evidence of fiscal equalization during this period. Highland Park and

Coppell School Districts lost money based on 1990 dollars, while Sunnyvale School

District remained close to even. All other districts show a gain in funding. We would

expect that the convergence of funding have a leveling up effect, meaning those areas

with more funding in 1990 had a proportional amount of increase, rather than a decrease

in funding. Using an inflation index of 0.814 for funding in 1997 when comparing

changes in funding, it is easy to see that there is a leveling down of funding per pupil.

Figure 5.1 Scatter plot of the Percent Change in Per Pupil Funding and the per Pupil Funding Levels: Independent School Districts

ISD Percent Change in Funding 1990/97
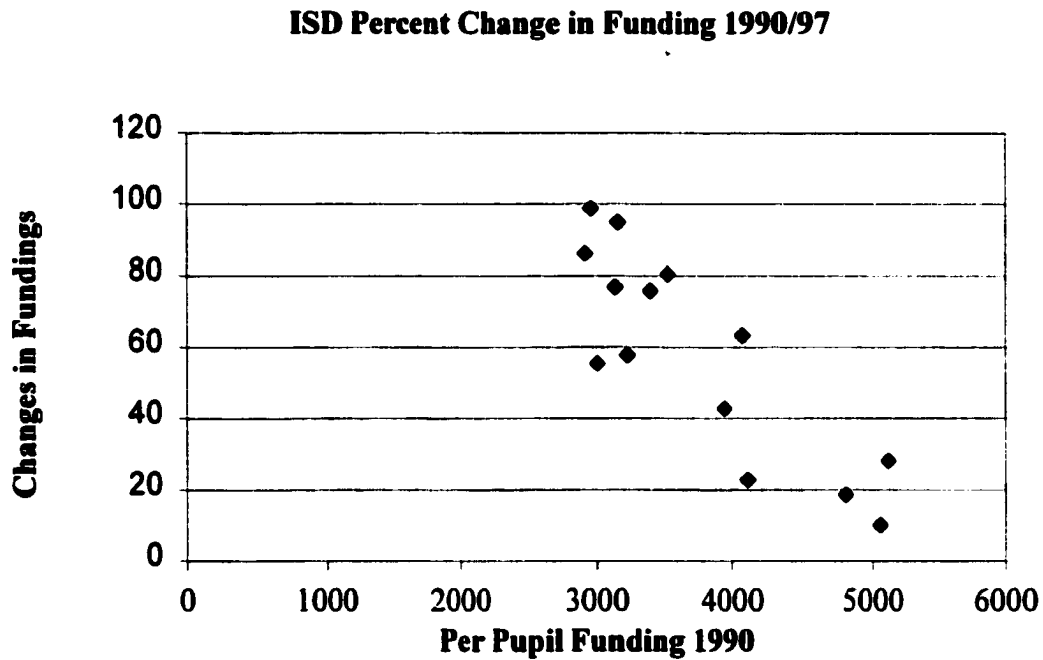
Map 5.1a Dallas County Independent School Districts Funding Per Pupil Levels 1990

Average Funding 1990 ($)

☐	2921 - 3005
▨	3006 - 3217
■	3218 - 3520
■	3521 - 4116
■	4117 - 5116
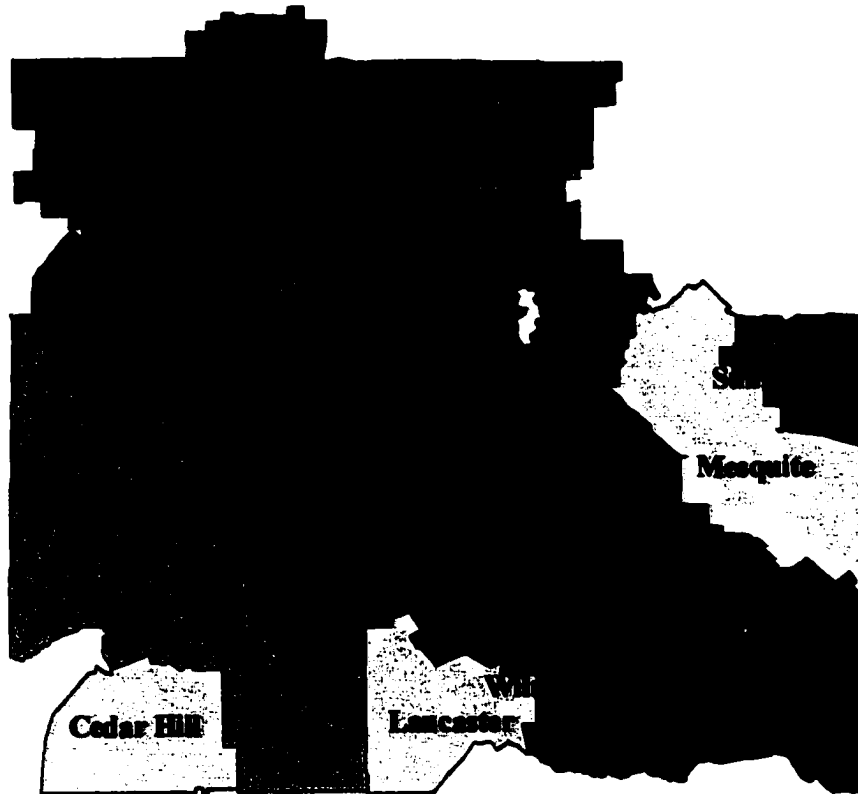
Map 5.1b Dallas County Independent School District (ISD) Funding Changes
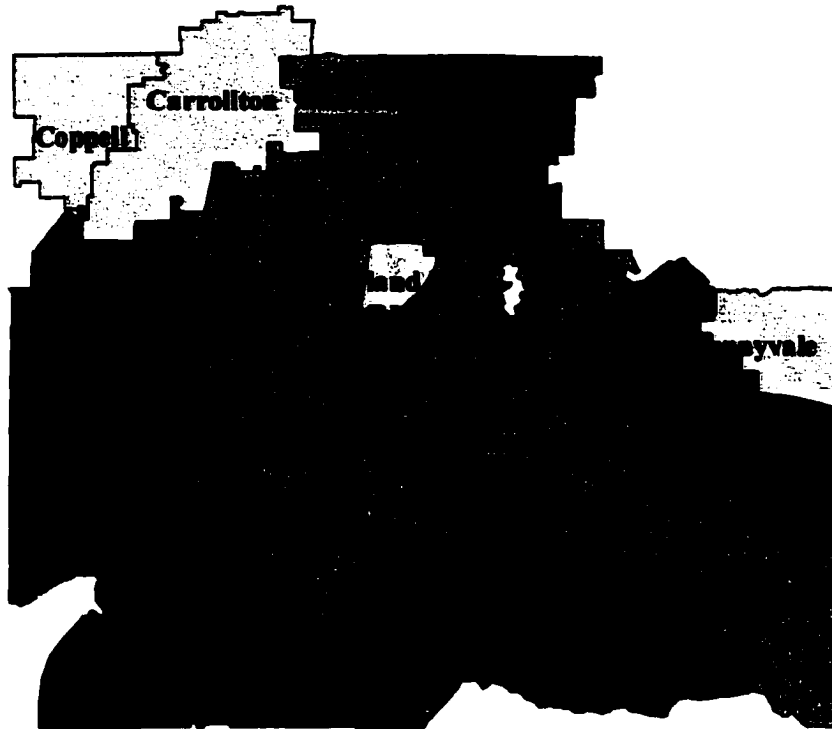
ISD Funding Changes (%)
- 10.1 - 28.1
- 28.1 - 42.9
- 42.9 - 63.4
- 63.4 - 86.1
- 86.1 - 98.8

Given that funding equalization has occurred at the district level, the next issue is to

consider how these changes affected the funding at the elementary school level. Has

funding equalization also occurred there?

To address this question, I compared the percentage change in per pupil funding

to the 1990 level of funding. (See Figure 5.2) Once again, there is a clear downward

pattern indicating convergence at the elementary school level. I use Map 5.3a to show

the elementary school zones funding per pupil levels and I use Map 5.3b to illustrate the

spatial distribution of the changes in funding levels.

Figure 5.2 Scatterplot of the Percentage Change in per Pupil Funding and the per Pupil Funding levels: Elementary School Zones
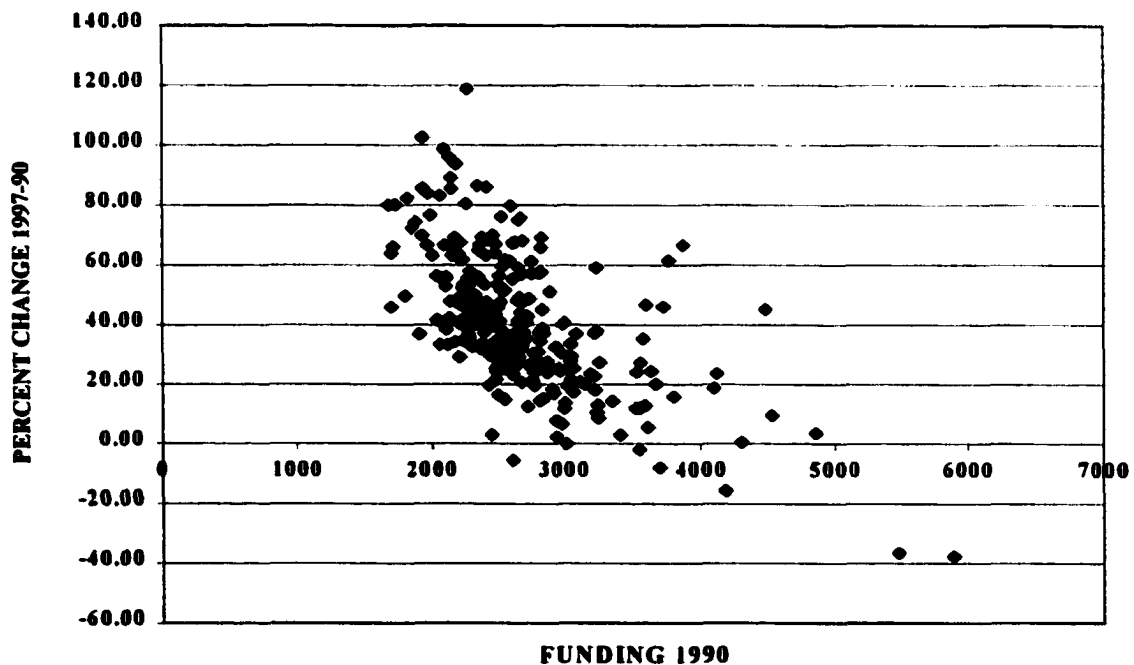
Map 5.2a Dallas County Elementary School Zones Funding Per Pupil Levels 1990

Elementary school zone boundaries
Funding Per Pupil Levels 1990 ($)
- 1686 - 2312
- 2313 - 2743
- 2744 - 3335
- 3336 - 4303
- 4304 - 5887
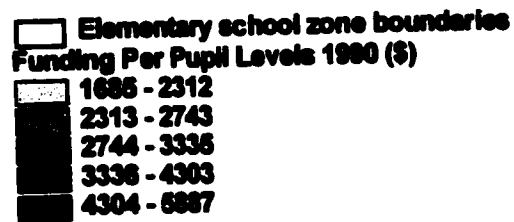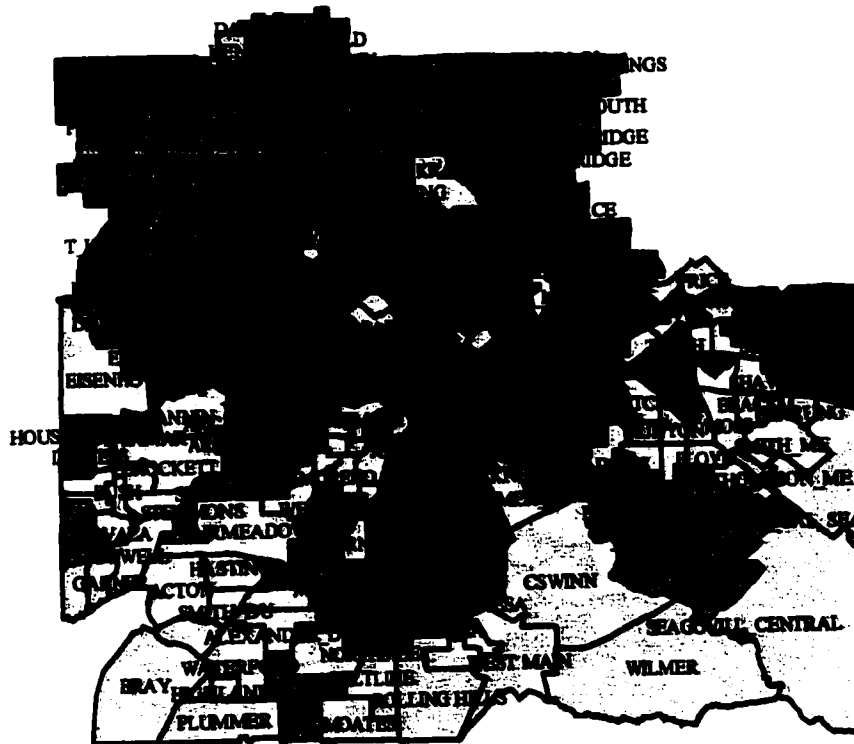
The spatial pattern in Map 5.3a illustrates that 25.7% of the zones received funding in the lowest quintile. This helps to show the need for an increase in funds. Map 5.3b presents the spatial distribution of funding after SB 7. It shows that only 2.8% of the elementary school zones received less money in 1997. Their location is primarily in the northern part of Dallas County. The largest percentage of the school zones (66.7%) received up to a 50% increase, while 30% of the zones received over 50% increase in funding per pupil.

Map 5.2b Dallas County Funding Changes in Elementary School Zones

Elementary school zone boundaries
Funding Change Percentages
Less than 0% change
0 - 50
Greater than 50% change
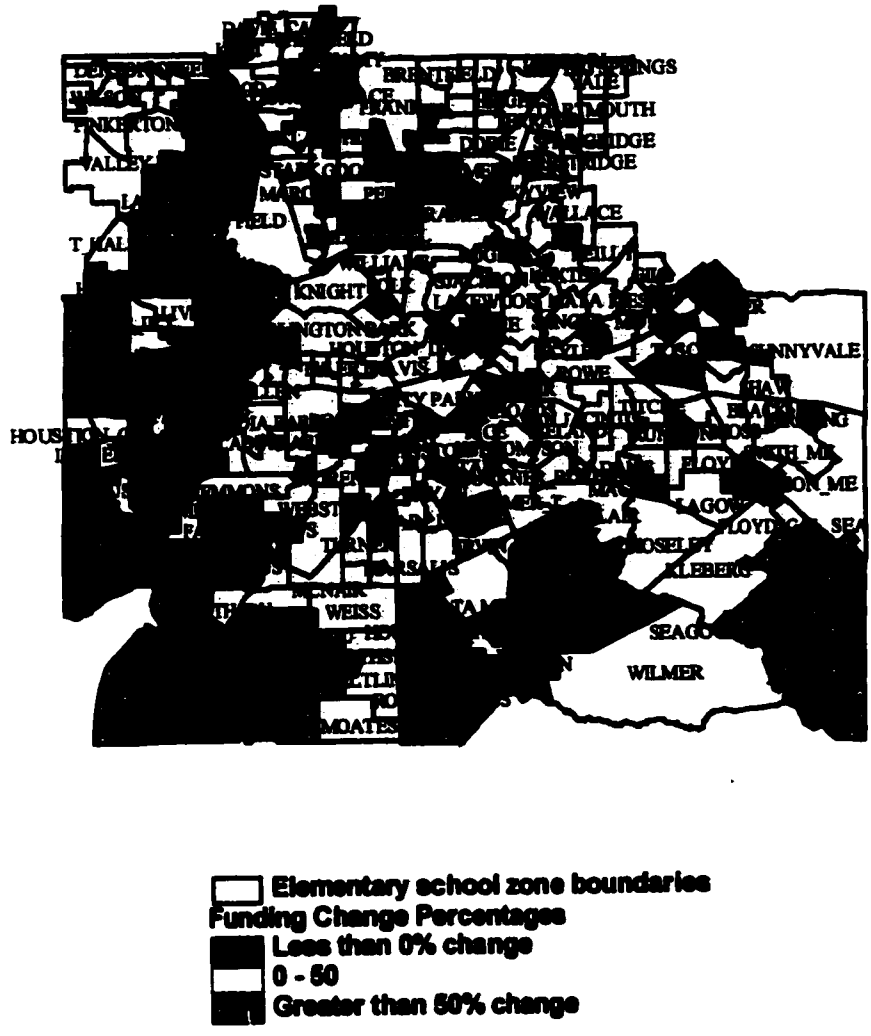
The methodology used to analyze the elementary schools is complicated by the

fact that the geographic boundaries for some schools have changed or were not in

existence in 1990 or 1997. To address this, I used the 1998 attendance zone boundaries

and worked backwards to ensure comparability of the data. I contacted all elementary

schools or their school district administration office and found what geographic areas and

schools had changed over the span of 1990 to 1997. The schools and their boundaries for

1998 were averaged by the data from the schools that were in existence in 1990 and

1997. For example, McKamy Elementary School in Carrollton Farmer's Branch did not

exist in 1990 but it has school children attending who would have gone to Thompson,

Blanton, and Sheffield Elementary Schools in 1990. McKamy's geographic boundaries

were defined from the boundaries of the three schools; therefore, it takes on the average

of the data of all three schools that were present in 1990. Each of the three schools, also,

exhibits its own data for 1990 in the boundaries defined by the 1998 school district maps.

The Question of Academic Improvements

The analysis above, demonstrates fiscal convergence. Did this translate into

academic convergence? To address this question, I analyze the TAAS pass rates in a

similar manner. The TAAS percentages used for each school district are the sum of the

percent passing all tests given in the 3rd, 7th, and 9th grades for 1990. The grades reporting

TAAS percent passing all tests in 1997 for the school districts were the 3rd, 8th, and 10th

grades. In the previous Table 5.1, the pass rates and the percentage change are displayed

for 1990 and 1997. Looking at the school district level, Maps 5.4 and 5.5 illustrates the

spatial distribution of pass rates in 1990 and the percentage change in pass rates,

respectively. By comparing the change to the 1990 levels (see Figure 5.3a) we again see

a clear downward pattern. This supports the argument that academic achievement

improved after SB 7. The data also supports the fact that there is a leveling down effect

also occurring. Those districts that had the best pass rates in 1990 did not have as great a

change in pass rates (see Table 5.1). Carrollton-Farmer's Branch, Highland Park and

Richardson Independent School Districts had less than 10% increase in pass rates.

However, if the relative change in TAAS pass rates as described in Table 5.1 is used, we

can distinguish those districts that had increases relative to the their TAAS scores in

1990. We see that Carrollton, Highland Park and Richardson had greater than 20%

change using the relative change. Figure 5.3b shows the relative changes in TAAS pass

rates and is a comparison of the scatterplot found in Figure 5.3a.

Figure 5.3a Scatterplot of the Percent Change in TAAS Pass rates: ISD Level.
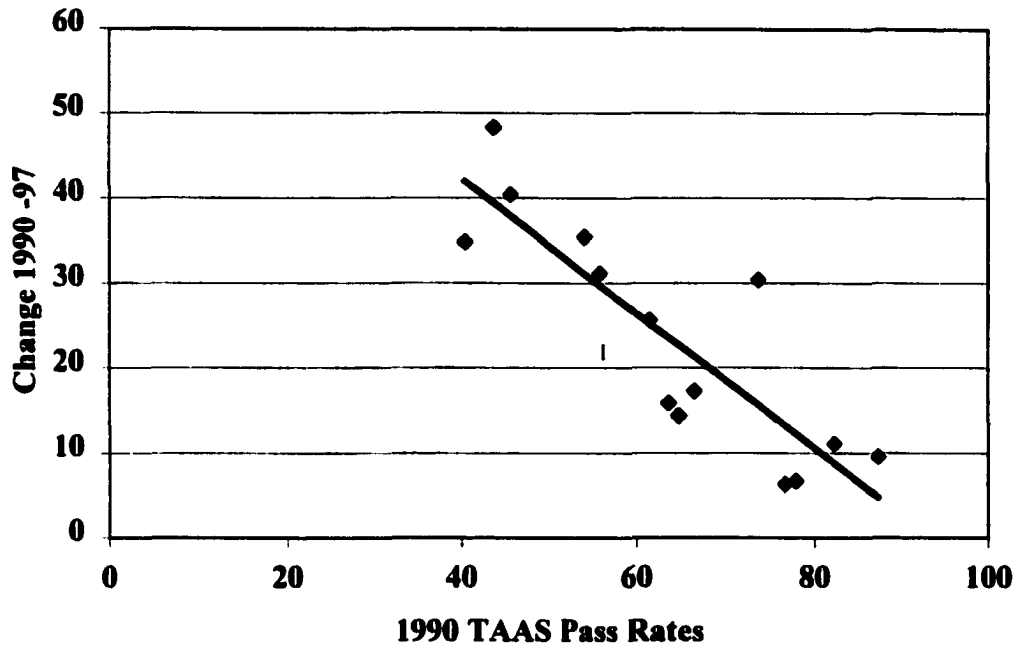
Figure 5.3b Scatterplot of the Relative Changes in TAAS Pass Rates: ISD Level
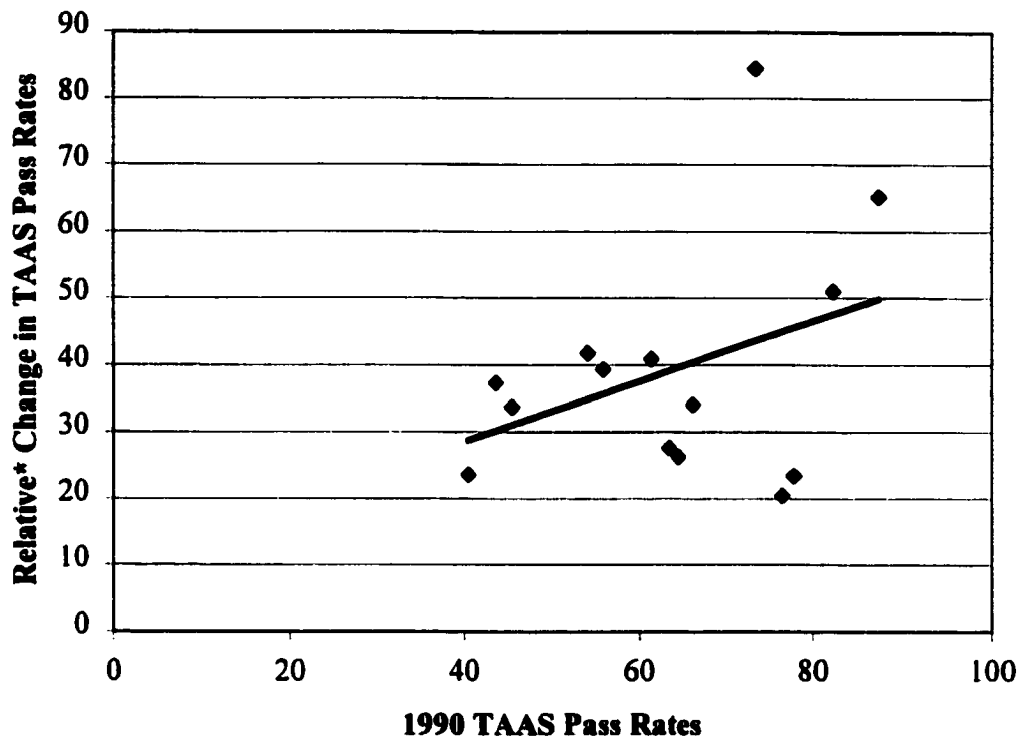
*Relative changes are based on each of the ISD's 1990 scores and the increases that were exhibited in 1997

Map 5.3 Dallas County ISD Average TAAS Pass Rates 1990

Average TAAS Pass Rate 1990
- 40.4 - 45.5
- 45.5 - 55.8
- 55.8 - 66.3
- 66.3 - 77.8
- 77.8 - 87.3
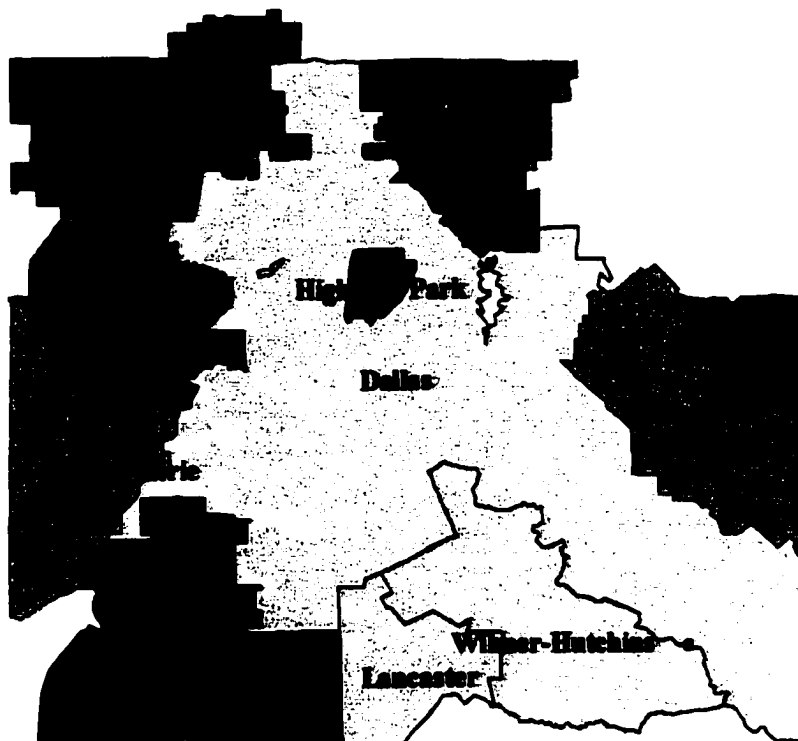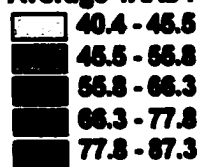
Map 5.4 Dallas County Changes in TAAS Pass Rates: ISD Level.
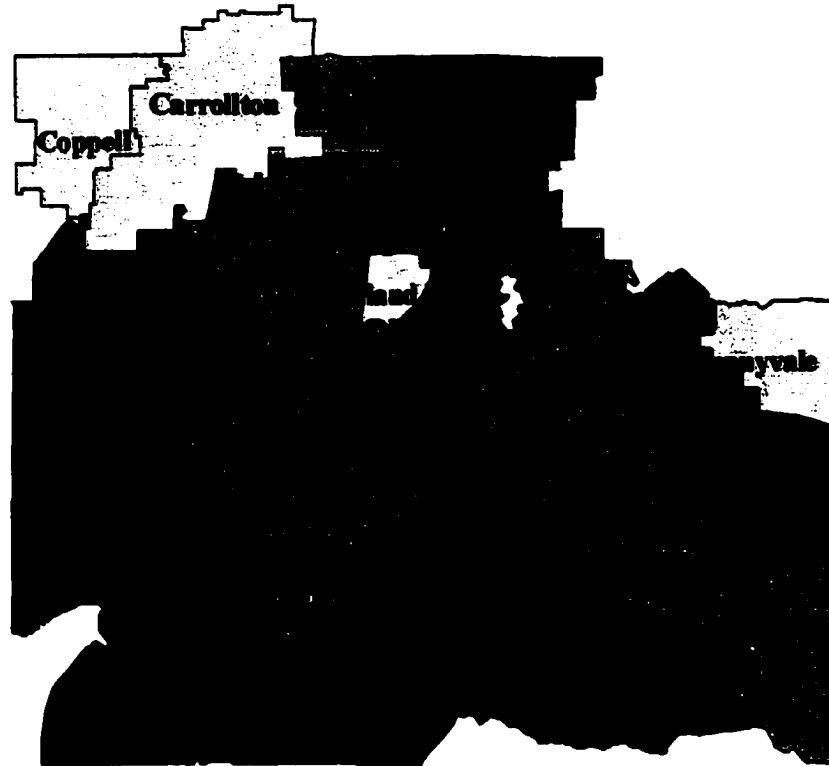
ISD Funding Changes (%)
- 10.1 - 28.1
- 28.1 - 42.9
- 42.9 - 63.4
- 63.4 - 86.1
- 86.1 - 98.8

The spatial pattern of the change in TAAS pass rates appears to show that the least amount of change in rates occurs in districts in the north part of Dallas County. Excluding Sunnyvale Independent School district, the districts with the least amount of change are Chapter 41 districts. Recall that Chapter 41 districts are those that give money for districts that are "property-poor" in relationship to their number of students in school.

When we look at TAAS pass rates at the elementary school zone level we find a similar pattern of distribution. We are able to see differences within the school districts, especially the large districts, which is why the housing markets analysis in the following section, concentrates on the elementary school zones. There is a downward pattern for elementary school zones, which indicates convergence. (See Figure 5.4). The spatial distributions of the 1990 TAAS pass rates and the changes in those rates are shown in Maps 5.5a and 5.5b.

Figure 5.4 Scatterplot of the Change in TAAS Pass Rates: Elementary School Zones

1990 TAAS Percent Passing 3rd Grade
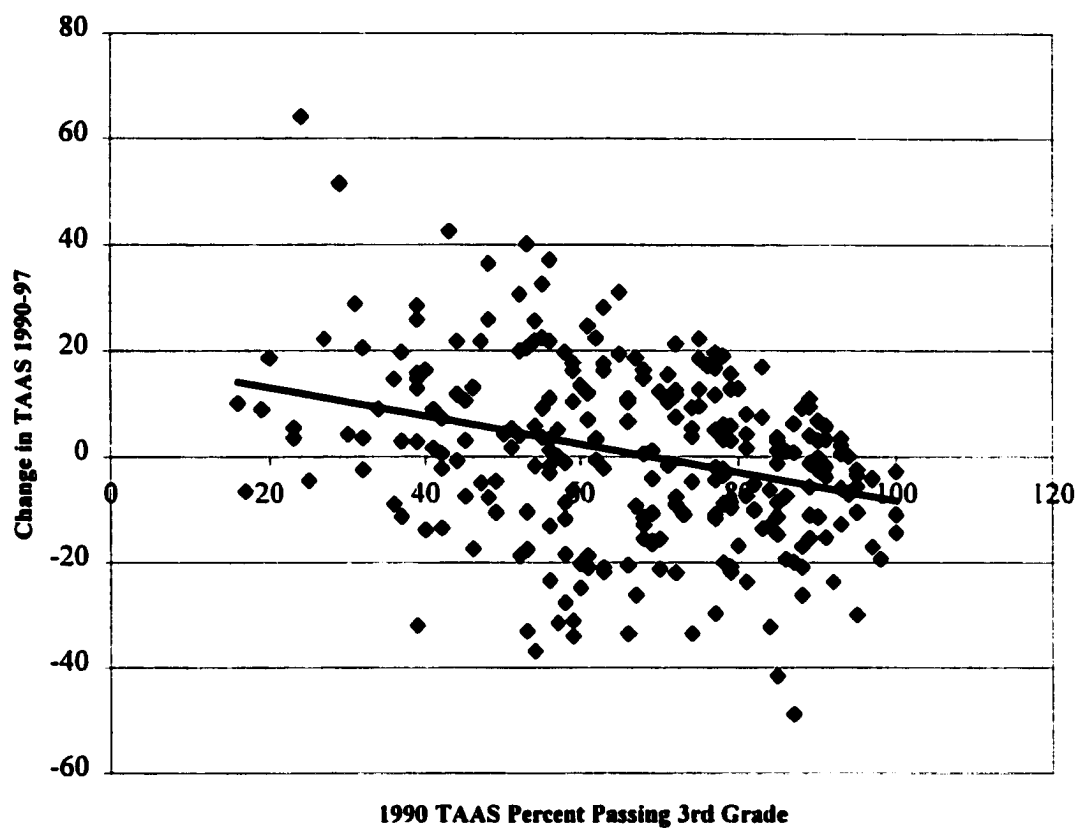
Map 5.5a 1990 TAAS Pass Rates for Elementary School Zones

Elementary school zone boundaries
TAAS Pass Rates 1990 (%)
0 - 27
27 - 40
40 - 66
66 - 81
81 - 100
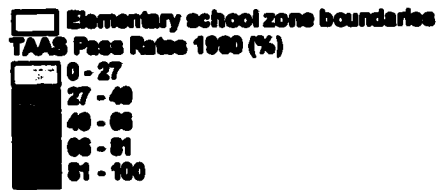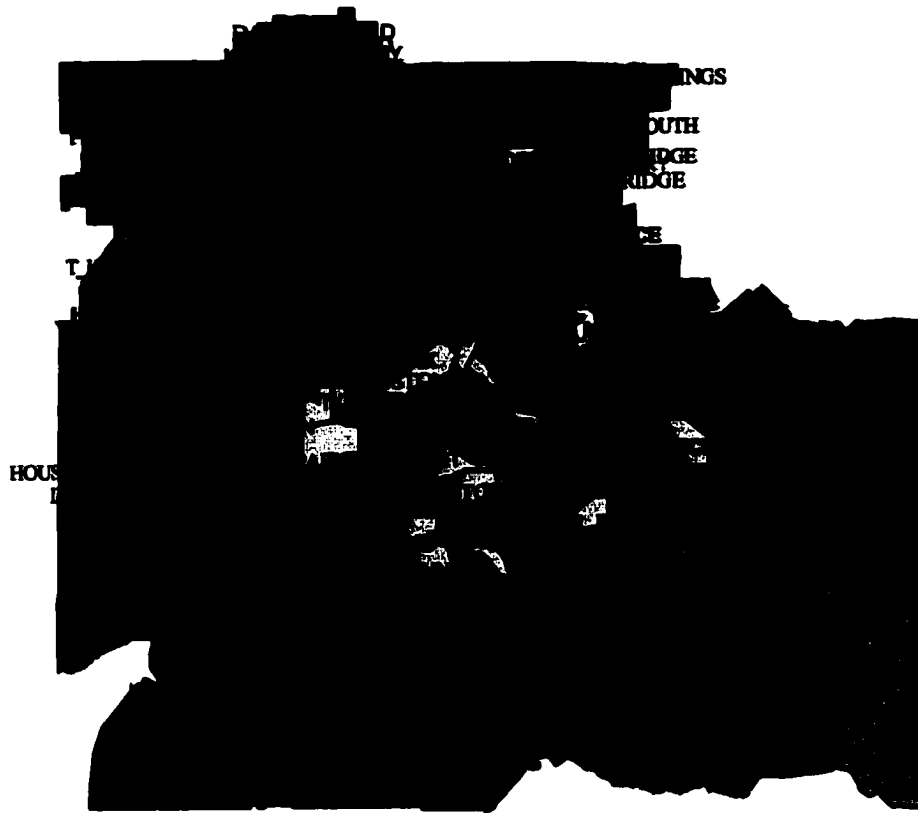
Map 5.5b Elementary School Zones Changes in TAAS

Elementary school zone boundaries
TAAS Change Percentages
Less than 0% change
0 - 50
Greater than 50% change
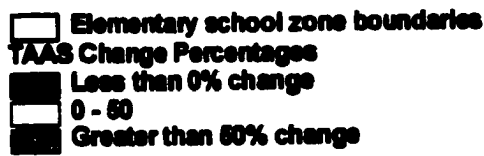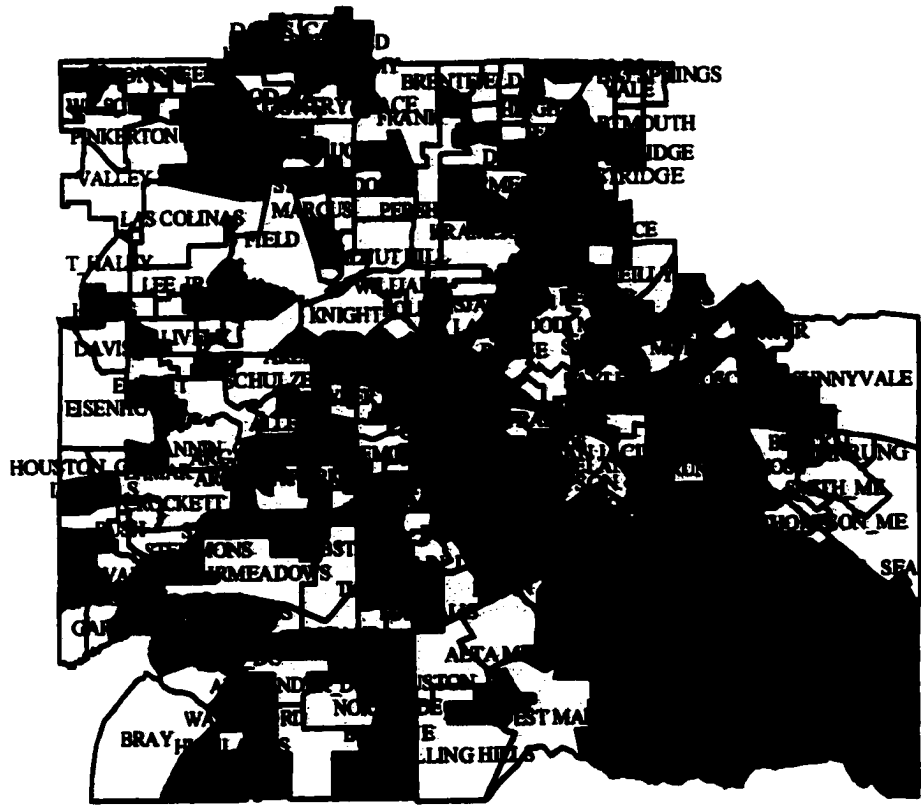
As indicated by the maps of the elementary school zones, 46% of the zones reported pass rates that were less in 1997. Over half of the school zones (54%) did report a pass rate at or above a zero percent change. The elementary school zone analysis vividly demonstrates the leveling down effect that has occurred after SB 7. The scatterplot diagram (see Figure 5.4), in addition to Map 5.5b, indicates that many schools' pass rate for TAAS did not improve as much as suspected by the increase in funding per pupil. There is a leveling down effect of the TAAS pass rates that leads us to question the relationship of a school zone and its appeal to homebuyers.

The Question of Real Estate Markets

The question of how real estate markets were affected by SB 7, addresses parental perceptions of the impact of the bill. If people perceive that school quality has equalized, then we should find that they are unwilling to pay for locations based on school districts or attendance zones. In fact, if school quality is equal between two zones but a premium exists, *ceteris paribus*, then we would expect that arbitrageurs to rather quickly act to remove the premiums.

The empirical methodology for estimating the willingness to pay for a home relies on the hedonic price model (Yinger 1982; Oates 1969), with school zone as one of the characteristics (Black 1999, Guilfoyle 1998, Hayes and Taylor 1996, Jud and Watts 1981). The hedonic price model offers a way to estimate the implicit price of the separate characteristics (Rosen 1974; Epple 1987) of composite goods such as housing. With the

use of hedonic pricing, this study "teases out" the characteristics that are important in

housing values, including characteristics of the schools and districts.[5]

The model involves a function of the selling price of a home before and after SB7.

The value of the home (Jud and Watts 1981) can be seen as:

$$P_i = f(A_i, E_i, L_i, SD_i) \quad i=1,...n :, \text{ where}$$

P_i = the market value for the ith house

A_i = a vector of the relevant housing attributes of the ith house

E_i = a vector of the relevant neighborhood and location variables, such as the quality of

schools and socioeconomic characteristics

L_i = a vector of the relevant accessibility variables (distance to work) for the ith house

SD_i = a vector of relevant school characteristics and/or the elementary school dummies

This model incorporates five housing attributes (A_i) used to determine the natural log

of the selling price (P_i) of a home. The living area (livarea) in square feet is used as a

measure of the size of the structure. The age of the home (AgeH) is used as an indicator

of the state of repairs needed and the structural design. The age of the home squared

(AgeHsq) is used to identify areas with homes of vintage quality. The variables pool,

fireplac, and baths are used as attributes for a home by noting how many, if any, are part

of the home. A representative of the intangible aspects (E_i) in a neighborhood (white)

---

[5] A hedonic price analysis regresses selling price of houses on a function of many characteristics of the home as described in the text. Zvi Griliches first introduced this technique of using large datasets in 1971.

indicates the percentage of white people[6] in each elementary school zone without indicating median income of the area. Accessibility variables (L_i) are used to denote distances to major public locations. Distance to the central business district is denoted by the variable dalcbd83. Other variables are distance to the Dallas-Fort Worth Airport (dfwair83); distance to the Galleria shopping mall (galleria); and distance to Los Colinas business district (lascol83).

The initial step for analyzing the relationship between school finance reforms and housing values is to estimate hedonic price equations before and after SB 7 using dummy variables for school effects (either at the district or elementary school level). The use of a "zone fixed effect" in the regression will control for all time-invariant, observed and unobserved, differences among the zones within the county.

This model assumes that the intercept varies over time (t) and/or across (i) cross-sectional units of observations (Kennedy 1993). Thus,

Before SB7 1990:

$$P_i^\prime = \alpha^\prime + \beta^\prime A_i + \xi^\prime E_i + \gamma^\prime L_i + \sum_{s=1}^{s} \delta^\prime SD_{it} + \varepsilon^\prime$$

After SB7 1997:

$$P_i^A = \alpha^A + \beta^A A_i + \xi^A E_i + \gamma^A L_i + \sum_{s=1}^{s} \delta^A SD_{is} + \varepsilon^A \quad ,$$

---

[6] Percentage of white people is based on the notion of a prevailing racial bias that conceives that homogenous neighborhoods are inherently "better" in quality.

where SD_i is a dummy indicating location in school zones (either district or elementary schools)'s for house i. Given that the main focus of the study is differences between the two functions, the first analysis of interest is to test all of these coefficients for any effect related to the timing of the introduction of SB7. More formally, Hypothesis 1 is:

$$H_o: \beta^B = \beta^A ; \delta^B = \delta^A; \gamma^B = \gamma^A ; \xi^B = \xi^A = 0$$

We can assume rejection of the null hypothesis (see below for test results), but it does not provide any reasons why the hypothesis is rejected, and if it is related to SB 7. If all the differences in the school zones were known and quantifiable, it would be straightforward to control for those characteristics and estimate the true effects of the change in funding on property values. Since these differences are not observed, the procedure followed compares the changes in the school dummies to funding variables.

The output from the fixed effect regression is a set of coefficients on each school dummy variable. Each of the school dummy variables represents the time-dependent housing value premium attached to each school zone, accounting for other house and neighborhood specific influences. Table 5.2a presents the results for 1990 and 1997 (before and after SB 7).

The results of the fixed effects model show that most variables are significant with t- values over 2.000 (see Table 5.2a). These results are consistent with previous findings on housing prices. The square footage of a house (livarea), the number of bathrooms (baths), and the presence of a swimming pool positively contribute to the price of the home. The age of a house detracts from the sale of a house, however, there is a

point where the age of the home adds to the price and this is illustrated by the variables AgeH and AgeHsq, which is the square of the age of the house. If I consider the marginal effect of these two variables and assume that the age deters from the selling price of a home, I would find that taking the derivative of the quadratic, AgeH and AgeHsq, should point to a negative sign on AgeH and a positive sign on AgeHsq. This is if at a certain age a home becomes more valuable, and is what the regression results point out (see Table 5.2a).

To control for the interactions that might occur between the size and age of a house, the variable livage was added. This variable is the results of multiplying AgeH times livarea. It is a significant variable and it adds to the sale of a home. However, the older and the larger homes after a point give a negative effect on the price as shown by livagesq. This interaction term does not add much to the price of a home but it is significant in some of the models.

In order to test the equality of the school zone coefficients found in 1990 and 1997 (Hypothesis 1), I incorporate a pooled version of the models and use the Chow test[7] for statistical control. The results of these models are presented in Table 5.2b. Again all variables with the exception of the distance variables are significant at a p-value of at least 0.05.

---

[7] The Chow test assumes that the error terms are normally distributed with the same variance σ^2 and that the mean μ_i are independently distributed normally.

The Chow tests follow the F distribution with the appropriate degrees of freedom.[8] The results of the Chow test are F= 83.26 for the ISD equation and F =12.28 for the elementary school zone equation. Both statistics indicate that the 1990 and 1997 models are significantly different. Thus, I maintain separate models for each year and proceed to test the significance of the school fixed effects.

---

[8] Formula for the Chow Test: F= S5/#of parameters (k) divided by S4/(n1+n2-2k). S5 = The pooled R-sq (S1)minus the sum of each separate year's R-sq (S2+ S3). S5 = S1 –S4, and S4= S2 + S3. S2 and S3 are the regression data for each year and S1 is the pooled regression data for both years.

Table 5.2a Regression Results with Dependent Variable Sale = lnPrice

*Indicates t-ratio > 2.00

Fixed Effects	1990 Housing attributes No schools	1990 Housing attributes and ISD Dummies[a]	1990 Housing attributes with Elementary School Dummies[b]	1997 Housing attributes No schools	1997 Housing attributes and ISD Dummies[a]	1997 Housing attributes with Elementary School Dummies[b]
livarea	0.000274*	0.000274*	0.000242*	2.67E-04*	0.000239*	0.000226*
baths	0.10046*	0.08701*	0.074919*	0.104356*	0.086689*	0.079142*
pool	0.007693*	0.009435*	0.010269*	0.010305*	0.011190*	0.012699*
fireplac	0.125027*	0.118657*	0.08549*	0.031089*	0.028412*	0.017850*
white	0.008695*	0.007414*	0.004869*	0.010263*	0.008963*	0.004231*
AgeH	-0.0253*	-0.02291*	-0.02348*	-0.018327*	-0.020218*	-0.020491*
dalcbd83	-0.1054*	-0.08391*	-0.22554*	-0.141463*	-0.128075*	-0.234030*
dfwair83	-0.00463	-0.0094	0.061553*	-0.014931*	0.004596	-0.005311
galleria	-0.04563*	-0.04233*	-0.06681*	-0.064701*	-0.072711*	-0.113663*
lascol83	0.001714	0.015528*	-0.04678*	0.010306*	0.020483*	0.013024
Dalcbdsq	0.000892	-0.00138	0.006637*	0.003682*	0.003001*	0.008251*
Gallersq	0.000788*	0.000229	0.00145*	0.001777*	0.001852*	0.002102*
DFWsq	-0.00394*	-0.00633*	-0.00513*	-0.001458	-0.002723	-0.003154
LasColsq	0.006799*	0.010692*	0.008282*	0.002480	0.003393	0.005457*
AgeHsq	0.000259*	0.00023*	0.000258*	0.000082*	0.000118*	0.000154*
livage	1.06E-05*	9.86E-06*	8.98E-06*	2.85E-06*	4.62E-06*	4.35E-06*
livagesq	-1.31E-07*	-1.25E-07*	-1.17E-07*	1.79E-08*	-1.12E-08	-1.71E-08*
Cedar Hill		0.074409			0.013426	
Coppell		0.084665*			0.216324*	
Dallas		0.051936*			0.067142*	
Desoto		0.208818*			0.190003*	
Duncanville		0.085684*			0.099789*	
Grand Prairie		-0.0992*			-0.011999	
Highland		0.538031*			0.490624*	
Irving		0.071144*			0.199622*	
Lancaster		0.12752*			0.138875*	
Mesquite		0.103328*			0.134067*	
Richardson		0.119823*			0.074340*	
Sunnyvale		0.440071*			0.736092*	
Wilmer-Hutchins		0.285124*			0.046758	
Intercept	11.56971*	11.75732*	12.09334*	11.84767*	11.75042*	13.31989*
Sample size	9566	9566	9566	12489	12489	12489
Adjusted R^2	0.8135	0.8322	0.8709	0.8319	0.8456	0.8904

a. Carrollton-Farmers Branch is the omitted District
b. Acton is the omitted elementary school zone.

Table 5.2b Pooled Regression Results with Dependent Variable Sale = lnPrice

* Indicates *t*-ratio > 2.00

Fixed Effects	Housing attributes No schools	Housing attributes and ISD Dummies[a]	Housing attributes with Elementary School Dummies[b]
livarea	0.000263*	0.000251*	0.00024*
baths	0.118871*	0.104648*	0.093851*
pool	0.007758*	0.009248*	0.010367*
fireplac	0.048035*	0.044828*	0.03057*
white	0.009709*	0.008118*	0.004248*
AgeH	-0.02378*	-0.02302*	-0.02097*
dalcbd83	-0.1246*	-0.10567*	-0.22937*
dfwair83	-0.01601*	-0.00449	0.007394
galleria	-0.05514*	-0.05929*	-0.09928*
lascol83	0.00873*	0.019402	-0.01572
Dalcbdsq	0.002563*	0.001022*	0.007767*
Gallersq	0.001353*	0.001043*	0.001606*
DFWsq	-0.00237*	-0.00426*	-0.00346*
LasColsq	0.004282*	0.006763*	0.006688*
AgeHsq	0.000253*	0.000251*	0.000262*
livage	9.11E-06*	9.37E-06*	8.24E-06*
livagesq	-1.05E-07*	-1.12E-07*	-1.06E-07*
Cedar Hill		0.080404*	
Coppell		0.176937*	
Dallas		0.043116*	
Desoto		0.217041*	
Duncanville		0.122349*	
Grand Prairie		-0.027*	
Highland		0.502285*	
Irving		0.146793*	
Lancaster		0.143008*	
Mesquite		0.11459*	
Richardson		0.065936*	
Sunnyvale		0.611547*	
Wilmer-Hutchins		0.126243*	
Intercept	11.63087*	11.67182*	13.04775*
Sample size	22055	22055	22055
Adjusted R^2	0.8073	0.8232	0.8653

a. Carrollton Farmers Branch is the omitted School District.

b. Acton is the omitted elementary school zone.

Having established that the 1990 and 1997 models are different, we can now test

the entire set of school dummies against zero. The null hypothesis is that schools have no

effect on property values, *ceteris paribus*, while the alternative hypothesis is that they do. More formally, Hypothesis 2 is:

$$H_o : \xi^j = 0$$, where ξ^j represents the vector of coefficients on the school

dummies for j = A, B.

Table 5.3 shows the F- Tests for testing this hypothesis using district and elementary school dummies. As indicated, the school dummies are significant in every specification.

Table 5.3 F-test Statistics for 1990 and 1997 Housing Prices Regressions

Year	Dummy variable set*	F-Ratio	Results
1990	Independent School Districts (ISD)	37.93	Reject the H_o
1990	Elementary School Zones	14.58	Reject the H_o
1997	Independent School Districts (ISD)	36.37	Reject the H_o
1997	Elementary School Zones	21.89	Reject the H_o

* The critical value (p = .01) for the F-statistic with the ISD dummy variables is 2.01 and 1.0 for the elementary school set.

Did Capitalization Equalize?

Turning to the question of convergence, I recognize that the estimated coefficients on the dummy variables give the premiums to house prices *relative to the omitted category*.[9] I then ask do these premiums converge? I address this by plotting the estimated change in premiums ($\hat{\delta}_{97} - \hat{\delta}_{90}$) against the 1990 premiums. A downward sloping plot would indicate convergence. I do this for a scaled[10] and unscaled model using the standard errors as the proxy for scaling the coefficients of the dummy school variables. The results indicate that for the unscaled model, there appears to be no convergence at the independent school district level (see Tables 5.5a and b), and a slight downward slopping pattern for the scaled model. This would follow the literature of Brunner, Murdoch and Thayer (1999) and Guilfoyle (1998) that suggests that there is no effect at the district level. The convergence is "teased out" when plotting the estimated coefficients at the elementary school zone level as Table 5.6a and b indicates. This gives validation of the analysis at the elementary school zone level because there is a clear downward shifting pattern for the unscaled and scaled model.

---

[9] Acton Elementary School zone is the omitted category for models with school zones and Carrollton Farmers Branch Independent School District is the omitted category for models with school districts. Acton Elementary School is in Desoto Independence School District. It is slightly lower than the mean in the average price of homes sold, and it is close to being equally representative if ethnic and racial diversity.

[10] Premiums are scaled by the standard errors of the estimates as reported in the regression.

Figure 5.5a Scatterplot of Premium Changes 1990-97 by ISD (Unscaled)
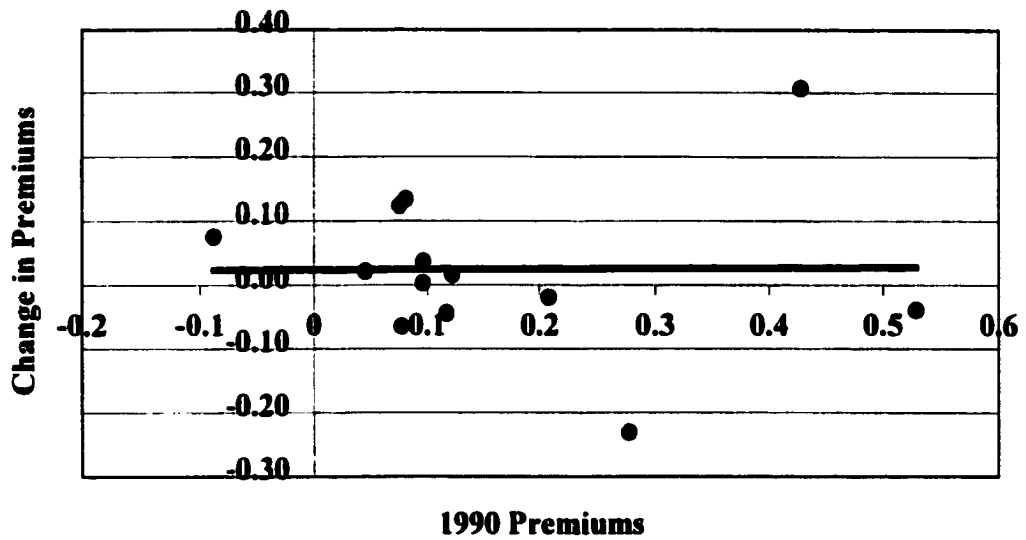
Figure 5.5b Scatterplot of Premium Changes 1990-97 by ISD (Scaled)
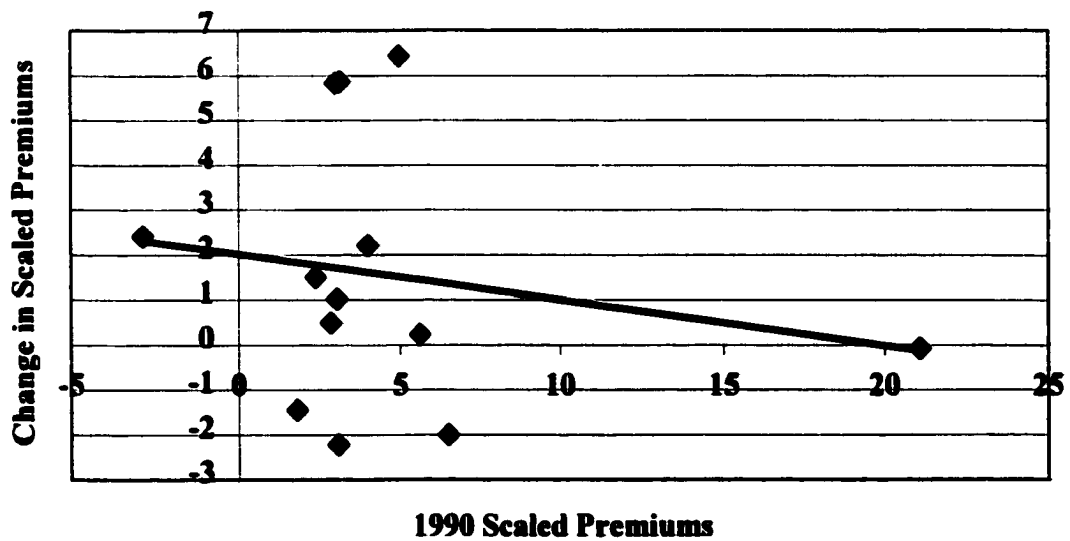
Figure 5.6a Scatterplot of Premium Changes by Elementary School Zones (Unscaled)
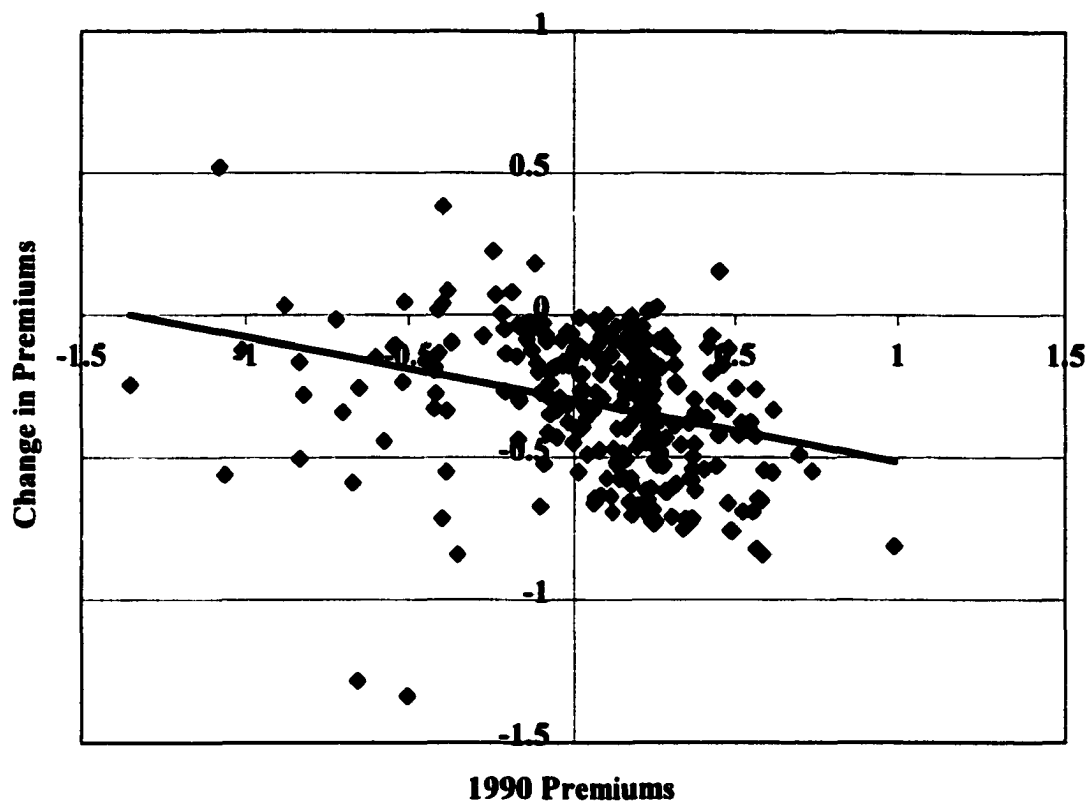
1990 Premiums

Figure 5.6b Scatterplot of Premium Changes by Elementary School Zones (Scaled)

1990 Premiums (Scaled)
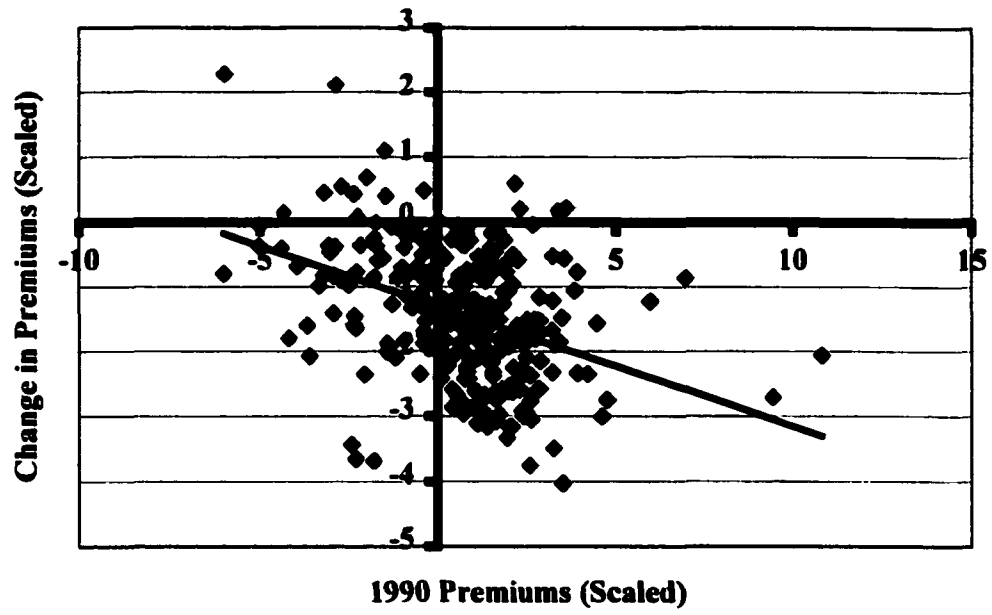
Map 5.6 Premium Changes in Housing Values in the Elementary School Zones

☐ Elementary School Zone Boundaries
Elementary School Zone Premiums
■ 90 Premiums < Average; Prem changes < Average
■ 90 Premiums > Average; Prem changes < Average
■ 90 Premiums < Average; Prem changes > Average
■ 90 Premiums > Average; Prem change > Average

Blank areas represent zones without sales in both 1990 and 1997

Map 5.6 gives the picture of the convergence that occurred in Dallas County elementary

school zones. To establish this comparison, I used specific measurements[11] for the

attributes of a home. I calculated the premium that the school zone added to the log of

the selling price for both years and then found the difference between those years. I then

calculated the average of the differences in premiums and the average of the premiums in

1990. Areas that portray the convergence are those whose 1990 premiums were below

the average and their change in premiums were above the average. Another group are

those whose 1990 premiums were above the average and their change in premiums were

below the average. This represents 35.2% and 29.1%, respectfully. These areas are more

than 50% of the school zones and it gives additional meaning to the scatterplot diagram.

It should be noted that not all school characteristics are fixed, and the discussion and

testing for random effects addresses that issue.

The Random Effects

I have established that funding per pupil, TAAS pass rates and house values show

evidence of convergence at the district and elementary school zone level since Senate Bill

7 (SB 7). Further development of these models tests if there is evidence that the funding

per pupil and/or TAAS pass rates are associated with the housing convergence. There is

likely to be some random error, some variability of each school area, associated with the

previous models. Only a portion of the variation is explained in the fixed effects model.

I estimate two different models to isolate any variation that may be associated with the

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[11] I envisioned a home with 1800 square feet in living area; 2 baths, 1 fireplace, a
neighborhood that was 75% white, a 20 year old house, and 6 miles from all distance
variables.

school districts and school zones. One method is to use a random effects model. The basic idea with this model is that the differences in the housing premiums may not be explained completely by changes in funding. It is necessary to test for any variation that may be occurring within each school district/zone. The random effect model is considered one method to control for that variation. For instance, the reason one school zone may have lower premiums on the sale of homes is that there is more crime in that area as opposed to another area. The city may have decided to build an aesthetically beautiful park in the area and newer homes are being built. The list of reasons could be infinite for the variation and that is why random effects models are used.

Greene (1993) discusses a random effect model versus the fixed effect model and he argues that the dummy variable approach is costly in terms of degrees of freedom lost. The data used for this study has thousands of observations so that argument does not necessarily apply. The random effects model does treat the individual effects of the dummy variables as uncorrelated with the other regressors used in the model. This aspect of the random effects model may then suffer from the inconsistency due to omitted variables.

The equation used to test the random effects is:

$$P_{90} = X_{ij}\beta_{90} + \delta_{90}Fund90_j + \mu_j + \varepsilon_{ij} \text{ and } P_{97} = X_{ij}\beta_{97} + \delta_{97}Fund97_j + \mu_j + \varepsilon_{ij}$$

This equation represents the test of the question did funding affect the price of homes sold, where a regression for each year is run; X is the vector of attributes of the home plus all the variables used in the fixed effects model; $Fund90_j$ and $Fund97_j$ represents the

school or district attribute that should make a difference in the price of a home; and μ_j is

the term used to test if there is any common elements in the group, i.e. school zones and

school districts. The covariance as indicated by sigma_u (σ_u) in Table 5.4 should be

zero among the school areas.

The academic achievement test (TAAS_GR3) is one of the school characteristics

(SQ_i) that represent the mean passing score for students in the 3rd grade. It is placed in

the equation and used as an indicator of educational output and school quality for the

elementary school zone, while expenditure per-pupil (Fund) is used as a proxy variable

for the level of input for educational services. The quality of a school should vary

directly with the expenditure per-pupil. The variable for the percentage of white students

in the school (Whitage) speaks to the issue of society's perception of racial preferences in

school zones and is added to the equation as in a stepwise regression. The results of the

funding variable can be seen in Table 5.4.[12]

The results for 1990 are as expected. There is a positive effect of funding,

academic achievement, and the percentage of white students on the selling price of a

house. By 1997, however, funding produces a negative effect on the selling price of a

home. This means that the more the funding, the less the selling price becomes as

indicated by the estimates. I used a step-wise regression to help uncover any significant

patterns of these school level variables. In 1990, funding per pupil is significant when

used as the only school level variable in the regression. When I add school quality as

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[12] Only the funding variables and selected school attribute variables are reported. The housing attributes and distance variables are significant as in the fixed effects models.

indicated by TAAS_GR3 and WHITAGE, funding no longer is significant, but it remains

positive. The most significant and positive school variable appears to be the percentage

of white students in the school. The negative sign on the funding coefficient is consistent

with the findings of convergence of the fixed effects model.

Table 5.4 Random Effects Regression Results at the Elementary School Level
*z-statistic in parenthesis

	1990 School Zones			1997 School Zones		
FUND_KID	.000044	.0000439	.0000164	-.00000536	-0.0000123	-.0000487
	(2.163)	(2.158)	(0.806)	(-0.25)	(-0.571)	(-2.224)
TAAS_GR3		.0000789	.2177662		.0030578	0.0007232
		(0.032)	(3.006)		(5.651)	(1.175)
WHITAGE			.003593			0.004463
			(6.196)			(7.815)
Sigma_u	0.14363075			0.16500198		
Sigma_e	0.24127596			0.22913051		

Next I address if the changes in premiums are attributable to funding differences,

using a regression model of the weighted change in premiums ΔPM, $(\hat{\delta}_{97} - \hat{\delta}_{90})$ as the

dependent variable. These are the premiums found on the sale of the house that was

captured in the fixed effects model. The model is: $\Delta PM_j = \alpha + \beta SQ_j$ where SQ_{ij}

represents school funding per pupil, TAAS pass rates and/or percent white students in the

schools. The weight is one over the sum of the variance $(\dfrac{1}{\sigma^2_{90j} + \sigma^2_{97j}})$. The weighted

least squares approach is necessary to correct for heterscedasticity in this model.

Recall that the funding in 1990 is related to how the funding per pupil changed

after SB 7. Thus, rich school in 1990 received relatively less by 1997. If the property

markets respond to the funding changes, I should see that the change in premiums is

inversely related to the 1990 funding levels. The results are shown in Figure 5.7a and b.

Figure 5.7a Relationship of Change in Premiums to the Funding per Pupil 1990 at the Elementary School Zone level
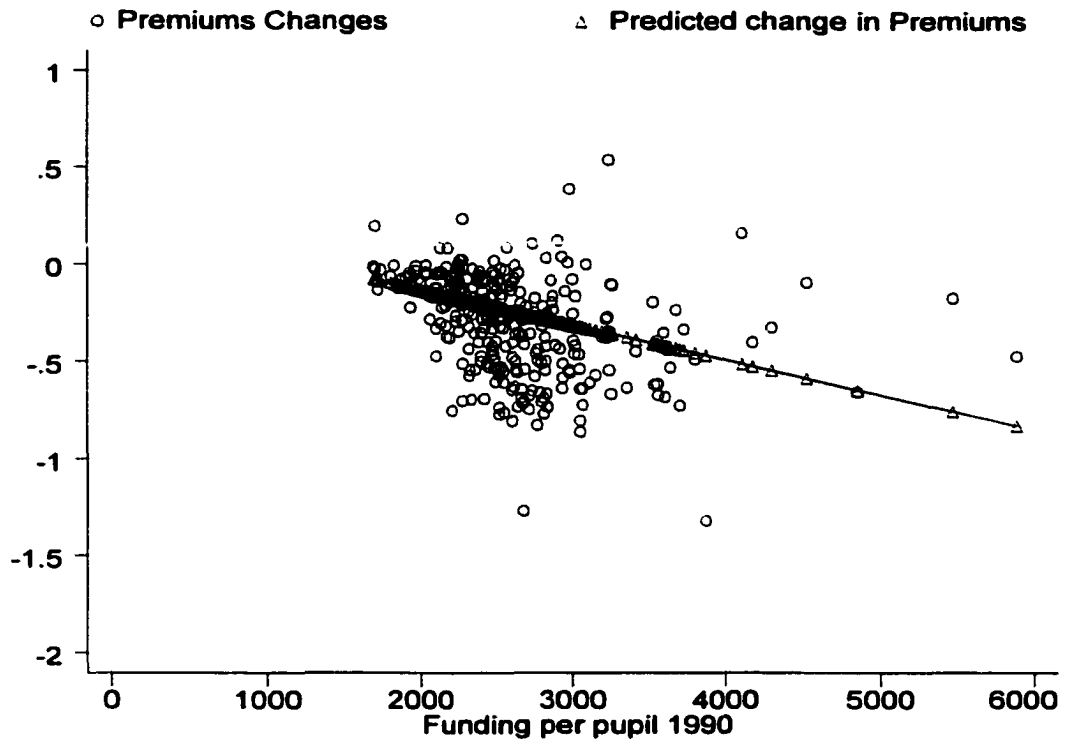
Figure 5.7b Relationship of Change in Premiums to the Funding per Pupil 1990 at the ISD Level

o **Premium Changes by ISD**   △ **Predicted Premium Changes**

1990 Funding per Pupil in ISDs
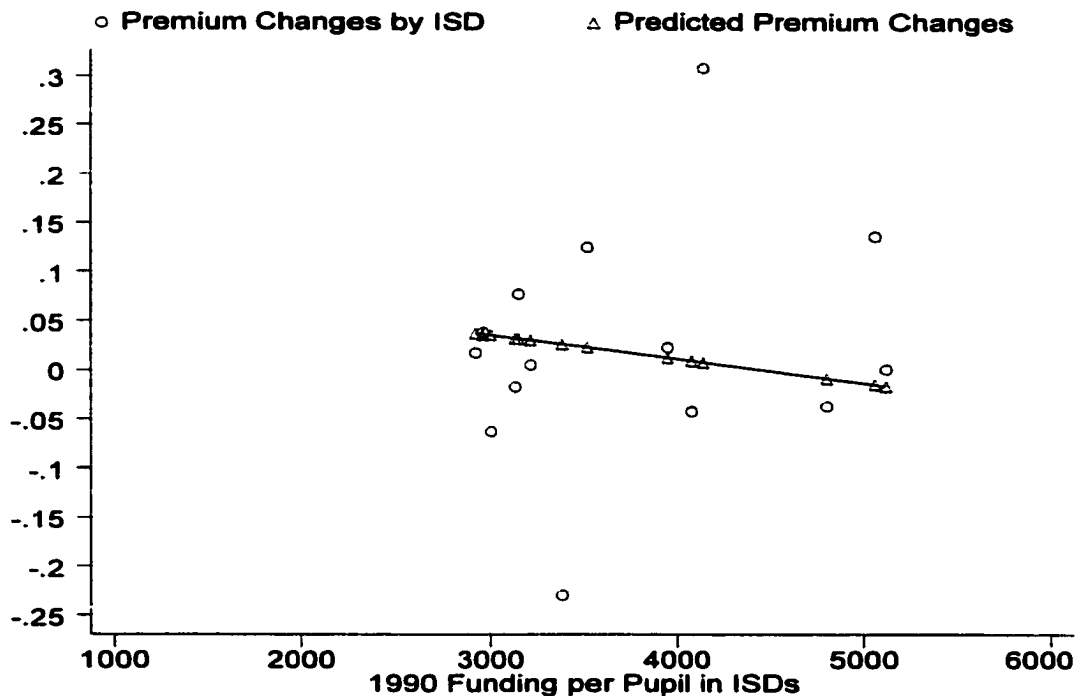
The regressions[13] support the notion of property value differentials converging as

a result of SB 7. The variable FUND90 is negative (-0.0001788) and significant

(t = -7.427), when looking at the elementary school zone level. The results for the

independent school districts show an insignificance of the ISD effect on the change in

price of a home with t = 0.23. The ISD results are actually consistent with the other

research at the ISD level. Moreover, they illustrate why it may be important to estimate

these models at the sub-district level. These results help to understand why the smaller

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[13] Regressions are found in the Appendix.

areas represented by the elementary school zones provides better information on the school areas.

Generating the elementary school zones through GIS is a valuable process. It is at the elementary school zone level that I am able to discern the relationship of housing premiums to school level variables. This endeavor provides the additional information whereby a new model for understanding the interaction of school quality and attributes, and the housing market is statistically tested.

CHAPTER SIX

CONCLUSION

Public policy for funding education is indeed a sensitive topic for most Americans. It is one of the issues that brings business, society, and government together in fierce debate at times. Public opinion is broad ranging on charter schools and vouchers, academic standards, and property tax levels within school districts. On the one hand there are those who see the need for more state or federal subsidizing of public education, while others believe control and funding is best at a local level with minimal influence from state or federal sources. Still, there are those who support the choice aspect of charter schools and vouchers, while traditionalists settle for the status quo method of providing education to children in public schools. The government is concerned with the future role of the United States as the world leader in academics. Businesses, on the other hand, are striving to have a supply of the best educated to work in their markets.

The climate for educational issues continues to be quite high during this presidential election campaign. A byline from The Economist , April 1-7, 2000, says "Education will be a major battleground in the coming American election. The first of three pieces looks at what George W. Bush has done in Texas." The national attention on

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education policy helps to bring even more relevance to this study, which has remained with those issues that surround equity, funding per pupil, and the housing market.

The findings presented in the preceding chapter show that property values and TAAS pass rate did converge. The fear that rich districts will lose their economic base by giving money to poorer districts is only partially correct. In fact, premium losses occurred in most areas. The change in the premiums on the selling price of a home at the elementary school level was inversely related to school funding prior to Senate Bill 7, suggesting that the convergence was related to educational funding policy.

The Complexity of School Districts

The improvement in TAAS scores[1] for those areas who had the least funding before Senate Bill 7 is important. Investigation of those scores at the ISD and elementary school zone level, indicate that in many of the areas with the worst scores in 1990, improved the most by 1997. However, it may take additional years to see the final consequences of the bill on property values. This work is a good beginning.

As we understand more about the role of school funding on property values and their effect for funding schools, we can develop local, state and national laws that are economically rational and sensitive to the educational achievements that are needed. SB 7, in its flurry to "please" the courts, may not have investigated what would happen if premiums decreased. The property tax base could potentially decline. Those areas that had a large tax base prior to SB 7 may see a decline as prices regress to the mean.

Using the elementary school zone as the level of investigation of property values gives us a closer examination of the effects of policy change on the market. At this micro

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[1] See Table 5.1.

level we can begin to understand why one zone may be so distinctly different in school qualities and neighborhood effects. This is key when a district is trying to determine its budget outlay and its obligation to the state. We can then use those differences, found at the elementary school level, to help determine better state laws. Large districts with much heterogeneity in school qualities and neighborhoods may be erroneously placed in "state-defined" categories. These categories can potentially cause as much havoc in the funding of pupils as before SB 7 was introduced by putting pressure on a district to find other ways of providing education at the same levels. Dallas Independent School District (DISD) is one of those large districts that seats some the richest and poorest areas in the county. The property tax income does not compensate at an equitable level for the greatly changing population and the challenges it presents. Smaller districts with more homogenous areas and population have been adequately assessed by the funding formula of the state. Highland Park ISD is an example of a smaller and homogenous community. To compensate for money going out of the local, plans can be quickly put in motion that will garner support from parents, teachers, and local businesses. Dallas ISD would have an insurmountable problem trying to garner support from the same sources, even though they have community liaisons in place who could help implement the process. The elementary school zone level of analysis helps to understand the relationship between incoming sources of funding and the adequate levels of per pupil expenditures. It can help a district to know where to focus more attention and money. However, districts' per pupil funding is at a higher level for the High Schools, and even though this is the case, it would be wise for a school district to improve the elementary level so that people could

show their "willingness to pay." This willingness to pay could eventually lead into larger

tax base for the district.

Summary

I find that a valuable way to summarize the political economy of public school

finance is to evaluate some the changes that occurred in funding, TAAS pass rates, and

number of sales by 1997. I calculated the means of specific variables at the elementary

school zone level (see Table 6.1). This table contains only the means for elementary

school zones that had sales in both 1990 and 1997[2].

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[2] This represents 278 elementary school zones. Other analysis in this chapter may use the averages for the 315 school zones represented in the maps.

Table 6.1 Means of Selected Variables by Elementary School Zone

Variables	1990 Mean	1997 Mean	Change
Price of House	$86,898	$99,132	-
Number of Sales	36	45	-
Square foot living area	1673	1688	-
Age of house	26	33	-
TAAS pass rate	66	67	5%
Percent White Students	48	35	-13%
Funding per pupil	$2,636	$3,645	41%

One of the analysis of this table simply points out that the activity of buying a home increased as noted by the number of sales in 1990 compared to 1997. People were buying older homes with more square footage. Schools, on the average, increased in the TAAS pass rate and funding per pupil. It is interesting to also note that the number of white students decreased. It would be good to explore in latter studies the reasons for what appears to be "white flight" from Dallas County school districts.

The equity chapter presented the concerns with a society that claims equality for all its citizens. As much as it would be politically polite to state that race does not play a factor in funding requirements, it is a growing concern for school districts which face an ever increasing colorization of its student population as denoted by the decrease in white students.

Public Policy Conclusions

The public policy chapter presents the history of school finance in a context of agenda formation and policy outcomes. It was the equity questions that lead the legislative body to devise Senate Bill 7. Of course it took the prodding of the courts to force the legislation to formulate the bill. Nonetheless, many school districts question the effectiveness of the bill and have sought redress by the courts. However, the only significant changes since SB 7 are (1) the $280,000 equalized wealth level being increased to $295,000 and (2) the "hold harmless" provision (where a district gets to keep more if they need more to get them to their 1992-93 level of spending) being made permanent (it was originally scheduled to expire after a few transitional years).

TAAS pass rates have not shown the improvements that school districts are satisfied to have. Recently, the superintendent of Dallas Independent School District put the burden of test score improvement on the job security of the principals. This is happening while the debate ensues on the "over teaching" of TAAS (also known as "teaching to the test") and "under teaching" of subjects that encourage students to cogitate. Criticism is sponsored from both sides. Advocates of "teaching to the test" believe that testing is the only way to measure students' progress over time. Opponents to this believe that more of a foundation in teaching the basics while exposing students to a vaster knowledge of their surroundings is more important than just having lesson plans around a test for academic achievement.

Considering the limited amount of resources to spend on education for students, it is foreseeable that by using the approach of teaching the test, Texans will have even

better records of student test scores that can serve as an example to other states. The

problem will be that the "dreamers and thinkers" of the future will come from those

schools that spend the time on subjects and areas that encourage students to cogitate

rather than how to pass a test in basic education. I foresee within this new millennium we

will have lawsuits that push for schools to teach a broader emphasis. It could be that we

will also see more ethnic minorities take control of their children's destiny by demanding

charter schools that will provide the kinds of education that the traditional public schools

no longer provide because they are "teaching to the test".

Caveats of Study

This study can lack from having just three years before and four years after SB 7

to investigate. An analysis requires the pertinent data to be available, and I completed

this study with the most available and affordable data that was possible. My study did

not investigate what was happening in the real estate markets prior to 1990. This kind of

analysis might predict the behaviors of the buyer during 1990 and 1997. It would also

help in isolating causes for differences in premiums in the districts.

Avenues of future investigation

The use of GIS in this kind of study is helpful and it could be incorporated at

more levels. Spatial analysis of the school zones could uncover themes of pollution as

generated by toxic waste sites and TAAS score rates. If students who live within a set

radius of a toxic waste site have lower scores than students who do not live within the

radius, the results of the study could estimate the correlation between the two and school administrators and state lawmakers could act to correct the problem.

Another area for further investigation could be to analyze the demographic of the distribution pattern for TAAS pass rates and funding per pupil. This would help to address questions regarding the race and language of the students. A specific question could be: "Do schools with the worst TAAS scores and highest percentage of ethnic minorities receive the least amount of funding?" The results from a study could show that equity still is not available for all.

I have contributed to the literature by providing an analysis at the elementary school zone level rather than the school district and by showing that convergence in TAAS pass rates and housing premiums is occurring after Senate Bill 7 of 1993.

APPENDIX

Explanatory maps, tables, charts, and definitions are presented here for better

clarity of elementary school attendance zones and the funding requirements.

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Table A.1: Texas School Reform Chronology,1971-1995

Year	Event
1971	*Rodriguez v. San Antonio,* a federal district court rules that the Texas school finance system violates the U. S. Constitution.
1973	In *Rodriguez v. San Antonio,* the U. S. Supreme Court rules that the Texas school finance system does not violate the U. S. Constitution.
1977-1984	The state legislature appropriates $1.1 billion in equalization aid to school districts with low property values.
1983	Governor White appoints a commission headed by H. Ross Perot to study Texas public schools and to make recommendations for reform.
1984	*Edgewood v. Kirby* is filed in a state district court, alleging that the state's school finance system violates the Texas Constitution.
1987	A Texas district court rules in *Edgewood v. Kirby* that the school finance system violates the Texas Constitution and must be changed.
1989	The Texas Supreme Court rules in *Edgewood v. Kirby* that the school finance system is unconstitutional and orders the legislature to change it.
1990	The state legislature passes Senate Bill 1, the first attempt to meet the Texas Supreme Court's demands.
1991	In *Edgewood II,* the Texas Supreme Court rules that Senate Bill 1 does not fix the unequal-funding problem and sets a new deadline for the legislature. The state legislature passes Senate Bill 351, creating CEDs (County Education Districts) to redistribute school funds. The bill also includes a number of educational reforms.
1992	In *Edgewood III,* the Texas Supreme Court rules that CEDs are unconstitutional and sets a new deadline for legislative action.
1993	Voters reject a constitutional amendment that would have set up a mechanism for shifting property tax wealth between districts. The state legislature passes Senate Bill 7,which creates mechanism for shifting property tax revenues from counties with high property values to counties with low property values. A state district court judge rules that Senate Bill 7 is constitutional.
1995	The Texas Supreme Court rules that the school finance bill is constitutional.

Texas Politics: The Challenge of Change.John R. Todd, Texas Politics: The Challenge of Change (1996)

Sources: Texas Comptroller of Public Accounts, *Fiscal Notes,* March 1988,8; Lawrence O. Picus and Linda Hertert, "Three Strikes and You're Out," *Journal of Education Finance* 18 (Spring 1993): 366-389; *Dallas Morning News,* (December 10, 1993), 22A.

Table A.2 Funding Per-Pupil and 3rd Grade Academic Achievement Scores (TAAS) Pass Rates in Dallas County Elementary School Zones

School Name	1990 Funding Dollars	1997 Funding Dollars	Percent Change in Funding	1990 TAAS Pass Rate	1997 TAAS Pass Rate	Percent Change in TAAS
ACTON	2066	3217	55.71	55	87.7	59.45
AIKIN	2543	3501	37.67	77	65.4	-15.06
ALEXANDER_DA	2831	3915	38.29	56	77.8	38.93
ALEXANDER_DU	2090	4151	98.61	59	76.8	30.17
ALTA MESA	2450	2520	2.86	75	97.3	29.73
ANDERSON	2285	3379	47.88	63	42	-33.33
ARAPAHO	3554	3980	11.99	77	96.7	25.58
ARCADIA PARK	2624	3490	33.00	59	25	-57.63
ARLINGTON PARK	4097	4864	18.72	67	31.6	-52.84
ARMSTRONG	3726	5442	46.05	93	96.4	3.66
AUSTIN_CP	2820	3873	37.34	89	78	-12.36
AUSTIN_GP	2827	3805	34.59	44	55.9	27.05
AUSTIN_MS	2003	3270	63.26	77	72.6	-5.71
BARTON	3196	3947	23.50	79	58.1	-26.46
BAYLES	3222	3954	22.72	42	42.6	1.43
BEASLEY	2132	4177	95.92	87	87.8	0.92
BELTLINE	2225	3259	46.47	82	72	-12.2
BETHUNE_DA	2362	3119	32.05	44.7	48.1	7.61
BIG SPRINGS	2454	3175	29.38	68	84.5	24.26
BISHOP	2450	2520	2.86	75	97.3	29.73
BLACK	2202	3279	48.91	62	61.4	-0.97
BLAIR	2645	3490	31.95	49	38.5	-21.43
BLANTON_CA	2673	4701	75.87	89	73.7	-17.19
BLANTON_DA	2537	3457	36.26	54	52.3	-3.15
BONHAM_DA	2741	3468	26.52	45	55.7	23.78
BONHAM_GP	1935	3595	85.79	62	65.4	5.48
BOWIE_DA	2285	3283	43.68	44	43.2	-1.82
BOWIE_GP	2258	3204	41.90	58	56.9	-1.9
BOWIE_RS	3354	3834	14.31	91	94.3	3.63
BRADFIELD	4303	4321	0.42	91	89.2	-1.98
BRANDEBURG	2483	4149	67.10	71	81.4	14.65
BRAY	1971	3629	84.12	70	82.4	17.71
BRENTFIELD	2527	3369	33.32	75	93.6	24.8
BRITIAN	2416	4496	86.09	43	85.7	99.3
BROWN_DA	4484	6512	45.23	71	30.8	-56.62
BROWN_IR	2676	3799	41.97	79	82.1	3.92
BRYAN	2604	3270	25.58	68	55.2	-18.82
BUCKNER_BURLESON	2572	3367	30.91	15.5	26.2	69.03
BUDD	2448	3256	33.01	34	43.1	26.76
BURNET	2103	3216	52.92	39	64.9	66.41
BUSH	2059	2746	33.37	67	58.9	-12.09
BUSHMAN	2773	3617	30.44	85	76.3	-10.24
CABELL	2991	4196	40.29	77	66.1	-14.16
CAILLET	3047	3892	27.73	37	56.8	53.51
CANNADAY	1853	3198	72.58	56	93.3	66.61
CANYON CREEK	3634	4521	24.41	94	86.8	-7.66

School Name	1990 Funding Dollars	1997 Funding Dollars	Percent Change in Funding	1990 TAAS Pass Rate	1997 TAAS Pass Rate	Percent Change in TAAS
CARPENTER	2354	3669	55.86	67	57.7	-13.88
CARR	2482	3566	43.67	57	57.1	0.18
CARROLLTON	2843	3948	38.87	60	73.5	22.5
CASA VIEW	2667	3444	29.13	56	59.3	5.89
CENTRAL_CA	3069	3602	17.37	83	69.5	-16.27
CENTRAL_DU	3092	4235	36.97	81	89.1	10
CHAVEZ	2832	4465	57.66	17	38	123.53
CITY PARK	3582	4846	35.29	90	50	-44.44
COCHRAN	2959	3708	25.31	58	49.3	-15
COCKRILL HILL	2399	3682	53.48	85	86.1	1.29
CONNER	2353	3884	65.07	61	40	-34.43
COTTONWOOD	3054	3709	21.45	93	87.1	-6.34
COUNTRY PLACE	2345	4378	86.70	85	88.7	4.35
COWART	2240	3352	49.64	42	49.3	17.38
CROCKETT	2131	3478	63.21	46	59.2	28.7
CSWINN	2172	3679	69.38	85	83.7	-1.53
CUELLAR	2285	3091	35.27	63	41.1	-34.76
DARTMOUTH	2924	3418	16.89	79	94.7	19.87
DAVIS_CA	2691	3969	47.49	81	82.6	1.98
DAVIS_DA	2139	3163	47.87	47	42	-10.64
DAVIS_IR	2611	4374	67.52	78	81.2	4.1
DEGOLYER	2408	3931	63.25	61	85.7	40.49
DENTON CREEK	2808	3677	30.95	91	96.75	6.32
DICKENSON	2149	3988	85.57	76	93.3	22.76
DOBIE	2946	3014	2.31	0	68.7	0
DONALD	2418	3545	46.61	45	37.5	-16.67
DORSEY	2359	3938	66.94	58	39.5	-31.9
DOUGLASS	2794	3510	25.63	56	67.1	19.82
DOVER	2946	3903	32.48	63	80.6	27.94
EISENHOWER	2179	3669	68.38	77	93.8	21.82
ELLIOTT	2759	4335	57.12	93	80.3	-13.66
FAIRMEADOWS	2032	3179	56.45	59	75.3	27.63
FANNIN_GP	2256	4074	80.59	63	79.3	25.87
FARINE	2501	3841	53.58	95	92.6	-2.53
FARMERS BRANCH	3558	4528	27.26	74	79.4	7.3
FLORENCE	3523	3946	12.01	72	79.5	10.42
FLORENCE HILL	2598	4673	79.87	91	87.2	-4.18
FLOYD	2175	2920	34.25	72	50	-30.56
FORESTRIDGE	2766	3354	21.26	77	88.7	15.19
FOSTER	2566	3425	33.48	57	62.1	8.95
FRANK	2504	3215	28.39	63.5	77	21.26
FRAZIER	2682	4212	57.05	48	84.6	76.25
FURNEAUX	2724	3689	35.43	78	84.1	7.82
GALLOWAY	2496	3471	39.06	60	39.7	-33.83
GARNER	1930	3908	102.49	86	87	1.16
GILBERT_IR	2591	4181	61.37	66	90	36.36
GILL	2422	3357	38.60	81	57.3	-29.26
GOOCH	2673	3853	44.15	65	84.4	29.85
GOOD_CA	2680	3539	32.05	78	81.6	4.62

School Name	1990 Funding Dollars	1997 Funding Dollars	Percent Change in Funding	1990 TAAS Pass Rate	1997 TAAS Pass Rate	Percent Change in TAAS
GOOD_IR	2523	4449	76.34	78	81.6	4.62
GREENWOOD	3797	4397	15.80	95	84.6	-10.95
HALL	2277	3426	50.46	53	93.3	76.04
HAMILTON PARK	4857	5031	3.58	69	70.1	1.59
HANBY	2237	3013	34.69	69	53	-23.19
HANES	2374	4023	69.46	85	70.4	-17.18
HASTINGS	1986	3511	76.79	79	70.4	-10.89
HAWTHORNE	3250	3671	12.95	66	32.5	-50.76
HEIGHTS	2694	3585	33.07	68	83	22.06
HENDERSON	2269	3531	55.62	37	25.7	-30.54
HERNANDEZ	2279	3101	36.07	39	7.1	-81.79
HEXTER	2627	3599	37.00	98	78.7	-19.69
HIGH POINTE	1714	2849	66.22	79	84.8	7.34
HIGHLANDS	1735	3129	80.35	66	77	16.67
HODGES	2107	3288	56.05	55	64.2	16.73
HOGG	2326	3336	43.42	54	17.1	-68.33
HOOE	2238	3438	53.62	69	52.6	-23.77
HOTCHKISS	3019	3017	-0.07	56	54.4	-2.86
HOUSTON_DA	2329	3353	43.97	24	62.9	162.08
HOUSTON_GP	2430	2906	19.59	52	56.1	7.88
HOUSTON_LA	2659	4229	59.04	72	88.2	22.5
HYER	3229	4428	37.13	91	96.9	6.48
IRELAND	2535	3354	32.31	36	50.7	40.83
J_HALEY	2510	3926	56.41	46	59.1	28.48
JAMES_DUNBAR	3871	6456	66.78	23	26.6	15.65
JESS HARBEN	2779	3442	23.86	100	89.1	-10.9
JOHNSON_GP	2065	3784	83.24	79	57.1	-27.72
JOHNSTON_DA	2700	3714	37.56	20	38.7	93.5
JOHNSTON_IR	2691	4529	68.30	67	85.7	27.91
JONES	2392	3327	39.09	36	27.1	-24.72
JQADAMS	2312	3283	42.00	60	35.2	-41.33
KAHN	2234	3403	52.33	61.5	35.8	-41.79
KENT	2213	3584	61.95	100	85.7	-14.3
KEYES	2532	4038	59.48	54	79.7	47.59
KIEST	2590	3305	27.61	92	68.4	-25.65
KIMBALL	2665	3975	49.16	97	92.7	-4.43
KLEBERG	2347	3481	48.32	53	35.5	-33.02
KNIGHT	2429	3157	29.97	55	58.7	6.73
KRAMER	2285	3609	57.94	72	64.4	-10.56
LAGOW	2399	3504	46.06	56	42.9	-23.39
LAKE HIGHLAND	3551	3480	-2.00	63	91.2	44.76
LAKESIDE	2496	3147	26.08	87.5	97.2	11.09
LAKEWOOD_MATA	2384	3194	33.98	61	73.1	19.84
LAMAR	2838	4120	45.17	48	73.9	53.96
LANDRY	2613	2468	-5.55	89	87.8	-1.35
LANIER	2848	3911	37.32	37	40	8.11
LAS COLINAS	2613	4060	55.38	89	93	4.49
LAWRENCE	5471	3475	-36.48	87	38.2	-56.09
LEE_CP	2561	3402	32.84	89	100	12.36
LEE_IR	2556	4135	61.78	71	86.6	21.97

School Name	1990 Funding Dollars	1997 Funding Dollars	Percent Change in Funding	1990 TAAS Pass Rate	1997 TAAS Pass Rate	Percent Change in TAAS
LIPSCOMB	2278	3538	55.31	51	52.7	3.33
LISBON	2655	3754	41.39	52	72	38.46
LIVELY	2731	3900	42.80	80	92.9	16.13
MACON	2649	3923	48.09	58	46.3	-20.17
MAPLE LAWN	2279	3495	53.36	39	41.8	7.18
MARCUS	2778	3321	19.55	44	65.9	49.77
MARSALIS	2562	3346	30.60	79	69.4	-12.15
MARSHALL_OLIVER	3229	3811.5	18.04	19	28	47.37
MCCOY	3602	5283	46.67	87	93.3	7.24
MCKAMY	3071	3850	25.37	91.3	75.8	-16.98
MCKENZIE	2144	4056	89.18	84	51.8	-38.33
MCLAUGHLIN	2555	3873	51.59	83	90.5	9.04
MCMILLAN_PATTON_T	3238	5154	59.17	61	76	24.59
MCNAIR	2379	3363	41.36	30	34.3	14.33
MCWHORTER	2134	3038	42.36	77	47.3	-38.57
MERRIFIELD	2046	2896	41.54	78	74.4	-4.62
MERRIMAN PARK	2484	3023	21.70	90	87.5	-2.78
MILAM_DA	2832	4795	69.31	17	10.5	-38.24
MILAM_GP	2199	3602	63.80	58	77.8	34.14
MILLBROOK	1685	3036	80.18	63	60.8	-3.49
MILLER	2898	4381	51.17	56	32.6	-41.79
MILLS	2521	3723	47.68	56	52.9	-5.54
MJACKSON_PEASE	2633	4419	67.83	40	26.2	-34.5
MLKING	3765	6081	61.51	43	33.3	-22.56
MOATES	2184	3223	47.57	52	82.8	59.23
MOCKINGBIRD	2431	3413	40.39	86	87.1	1.28
MOHAWK	2941	3170	7.79	83	100	20.48
MONTGOMERY	3254	3534	8.60	95	65.1	-31.47
MORENO	2204	3102	40.74	42	39.8	-5.24
MOSELEY	2914	3447	18.29	39	67.6	73.33
MOSS	2202	2845	29.20	62	65.4	5.48
MOSS HAVEN	2636	3321	25.99	81	73.6	-9.14
MOTLEY	2878	3674	27.66	77	95	23.38
MOUNT AUBURN	2417	3567	47.58	47	68.9	46.6
NATHAN ADAMS	2529	3835	51.64	89	83.3	-6.4
NATHAN ADAMS_T	2529	3835	51.64	89	83.3	-6.4
NORTHLAKE	3411	3509	2.87	61	42.3	-30.66
NORTHRICH	3052	3679	20.54	68	68.6	0.88
NORTHSIDE	2491	3113	24.97	88	67.1	-23.75
NORTHWOOD	3532	4385	24.15	85	73.7	-13.29
OHENRY	3242	3580	10.43	88	61.8	-29.77
PEABODY	2483	3564	43.54	74	83.3	12.57
PEELER	2626	3585	36.52	46	28.6	-37.83
PERSHING	2335	3643	56.02	62	84.5	36.29
PINKERTON	3054	3952	29.40	93	93.5	0.54
PIRRUNG	1701	2791	64.08	72	93.4	29.72
PLEASANT GROVE	2250	3131	39.16	39	51.9	33.08
PLEASANT RUN	2037	2885	41.63	31	60	93.55
PLUMMER	1928	3277	69.97	87	67.1	-22.87
POLK	2937	3890	32.45	74	77.8	5.14

School Name	1990 Funding Dollars	1997 Funding Dollars	Percent Change in Funding	1990 TAAS Pass Rate	1997 TAAS Pass Rate	Percent Change in TAAS
PORTER	2479	4071	64.22	71	69.4	-2.25
POWELL	2264	4951	118.68	88.5	97.6	10.28
PRAIRIE CREEK	5887	3673	-37.61	100	97.2	-2.8
PRESTON HOLLOW	2359	3434	45.57	51	56.4	10.59
PRESTONWOOD	2650	3523	32.94	88	71.1	-19.2
PRICE	2103	3270	55.49	78	75.7	-2.95
RAINWATER	2846	3279	15.21	94.7	91.4	-3.48
RANGE	2112	2924	38.45	69	64.8	-6.09
RAY	4531	4963	9.53	42	28.6	-31.9
RAYBURN	2183	4232	93.86	72	83.8	16.39
RE LEE	2528	3850	52.29	66	45.5	-31.06
REAGAN	2608	3215	23.27	39	54.8	40.51
REILLY	2327	3260	40.09	68	82.9	21.91
REINHARDT	2808	3587	27.74	86	66.7	-22.44
RHOADS	3241	4470	37.92	85	43.4	-48.94
RICE	3259	4152	27.40	67	40.8	-39.1
RICHLAND	2633	3577	35.85	97	80	-17.53
ROBERTS	2880	3633	26.15	41	50	21.95
ROGERS	2727	3069	12.54	68	56.5	-16.91
ROLLING HILLS	1966	3278	66.73	85	88	3.53
ROSEMEADE	2722	3839	41.04	97	93	-4.12
ROSEMONT	2230	3608	61.79	54	59.8	10.74
ROWE	2474	3248	31.29	58	30.4	-47.59
RUGEL	2759	4452	61.36	73	62.1	-14.93
RUNYON	2238	3414	52.55	53	42.6	-19.62
RUTHERFORD	1907	2610	36.86	77	82	6.49
SALDIVAR	2103	2934	39.51	39	53.8	37.95
SAN JACINTO	3024	3613	19.48	41	42.6	3.9
SANGER	2975	3699	24.34	68	52.6	-22.65
SCHULZE	2658	4656	75.17	54	76	40.74
SEABOURN	3591	4052	12.84	70	48.8	-30.29
SEAGOVILL_CENTRAL	2260	3396.5	50.29	32	29.6	-7.5
SEGUIN_RUSSELL	2862	3630.5	26.85	23	28.5	23.91
SHANDS	2170	3586	65.25	78	69.2	-11.28
SHAW	2120	2826	33.30	84	77.7	-7.5
SHEFFIELD	3699	3400	-8.08	95	89.4	-5.89
SILBERSTEIN	2552	2929	14.77	57	25.5	-55.26
SJACKSON	2439	3524	44.49	82	76.8	-6.34
SKYVIEW	2758	3458	25.38	70	54.5	-22.14
SMITH_DU	2285	3420	49.67	78	58	-25.64
SMITH_ME	1804	2700.5	49.70	74.5	87.7	17.72
SPRING CREEK	3156	3785	19.93	94	94.1	0.11
SPRING VALLEY	3121	3774	20.92	66	72.7	10.15
SPRINGRIDGE	2615	3222	23.21	90	78.6	-12.67
STARK	2985	3892	30.39	80	63.2	-21
STEMMONS	2541	3183	25.27	62	61.3	-1.13
STEVENS PARK	2477	3550	43.32	27	49.3	82.59
STULTS ROAD	4184	3529	-15.65	74	40.5	-45.27
SUNNYVALE	4116	5085	23.54	83	100	20.48
T_HALEY	2497	3640	45.77	66	76.4	15.76

School Name	1990 Funding Dollars	1997 Funding Dollars	Percent Change in Funding	1990 TAAS Pass Rate	1997 TAAS Pass Rate	Percent Change in TAAS
TERRACE	3022	3776	24.95	86	78.6	-8.6
TERRY	2874	3562	23.94	32	52.6	64.38
THOMPSON_CA	2840	3886	36.83	90	89.8	-0.22
THOMPSON_ME	1701	2482	45.91	72	84.6	17.5
THORNTON	2395	3289	37.33	53	73.7	39.06
TISINGER	2500	2909	16.36	69	58.4	-15.36
TITCHE	2261	3230	42.86	25	20.5	-18
TOLBERT	2277	3116	36.85	53	20	-62.26
TOSCH	3002	3357	11.83	78	97.1	24.49
TOWN CENTER	2820	3227	14.43	89	98.5	10.67
TOWNLEY	2813	4430	57.48	81	85.3	5.31
TRAVIS_DA	2660	3733	40.34	73	44.4	-39.18
TRAVIS_GP	2460	4185	70.12	29	80.6	177.93
TRUETT	2481	3106	25.19	56	57.3	2.32
TURNER	2224	3138	41.10	59	52.7	-10.68
TWAIN_DA	2421	4082	68.61	59	27.9	-52.71
TWAIN_RI	3613	3814	5.56	62	65.2	5.16
U LEE	2625	3517	33.98	40	56.5	41.25
UNIVERSITY PARK	3004	4226	40.68	90	96.8	7.56
URBAN PARK	2487	3085	24.05	32	35.6	11.25
VALLEY RANCH	2743	4082	48.82	89.5	93.1	4.02
WALLACE	3010	3419	13.59	84	71.1	-15.36
WALNUT HILL	2828	4695	66.02	77	82.1	6.62
WATERFORD	1878	3278	74.55	74.3	69.2	-6.86
WEBSTER	2516	3552	41.18	55	77.6	41.09
WEISS	2984	3181	6.60	49	44.4	-9.39
WEST MAIN	1823	3326	82.45	59	69.4	17.63
WHITE ROCK	2679	3233	20.68	77	75	-2.6
WILLIAMS	3671	4410	20.13	50	54.3	8.6
WILSON	3054	4078	33.53	93	95.1	2.26
WINNETKA	2297	3051	32.83	48	40.3	-16.04
WITHERS	2408	3474	44.27	61	68.1	11.64
WITHERS_T	2408	3474	44.27	61	68.1	11.64
YALE	2487	3346	34.54	79	91.8	16.2
YOUNG_DE	2210	3704	67.60	75	84.6	12.8
ZARAGOZA	2327	3489	49.94	52	33.3	-35.96
ZAVALA	2095	3493	66.73	65	96.1	47.85

Table A.3 Hedonic Price Equations Regression Results for Schools and Attribute Variables					
	1990			1997		
School	Parameter Estimate	t	# of Sales	Parameter Estimate	t	# of Sales
ACTON*	12.08236	28.749	57	13.36987	39.557	72
AIKIN	0.4852056	2.653	30	-0.0818211	-0.569	47
ALEXANDER_DA	0.2545067	2.429	11	0.2783231	2.632	7
ALEXANDER_DU	0.4666496	9.569	75	0.2912166	7.169	90
ALTA MESA	0.2712802	1.904	6	-0.2658095	-2.74	16
ANDERSON	-0.2201846	-1.335	15	-0.0140754	-0.108	21
ARAPAHO	0.3799346	2.04	36	-0.2662498	-1.806	37
ARCADIA PARK	0.0677005	0.336	2	-0.5427768	-3.805	4
ARMSTRONG	0.5063055	2.91	85	0.1547181	1.112	123
AUSTIN_CP	0.6372653	3.153	75	-0.138097	-0.859	58
AUSTIN_GP	0.381974	3.614	15	-0.166867	-1.964	21
AUSTIN_MS	0.3663273	1.931	32	0.1922718	1.292	41
BARTON	0.5686216	3.62	47	0.1712458	1.345	34
BAYLES	-0.0510914	-0.299	19	-0.356245	-2.68	52
BEASLEY	0.3286363	1.729	48	0.0946551	0.63	46
BELTLINE	0.2769222	3.945	76	0.1734381	3.113	93
BETHUNE_DA	0.002665	0.025	26	-0.1768531	-2.016	34
BIG SPRINGS	0.2556166	1.284	90	-0.2189536	-1.394	86
BISHOP	0.3761756	1.4	1	0.0797788	0.501	3
BLACK	0.2279757	1.19	55	0.0605147	0.407	64
BLAIR	0.1038091	0.607	6	-0.4714852	-3.865	20
BLANTON_CA	0.2847539	1.562	51	-0.4510917	-3.142	39
BLANTON_DA	-0.0237655	-0.148	35	-0.1927425	-1.523	59
BONHAM_DA	-0.4801221	-2.686	41	-0.4631125	-3.241	61
BONHAM_GP	0.1826164	1.901	11	-0.050002	-0.663	17
BOWIE_DA	-0.4634551	-1.606	1	-1.109845	-5.446	2
BOWIE_GP	0.1912517	1.74	9	-0.1375345	-1.857	29
BOWIE_RS	0.2848773	1.548	101	-0.3851075	-2.666	94
BRADFIELD	0.6459325	3.762	143	0.2871181	2.077	139
BRANDEBURG	0.4771973	2.658	31	0.028192	0.197	37
BRAY	0.0907465	1.25	48	0.1019731	1.723	48
BRENTFIELD	0.3943926	2.153	146	-0.4065557	-2.839	140
BRITIAN	0.1201525	0.794	24	-0.0090834	-0.074	28
BROWN_IR	0.451828	3.105	27	0.1378998	1.171	33
BRYAN	-0.6220553	-3.965	6	-0.7467198	-6.362	13
BUCKNER_BURLESON	-0.2295376	-1.365	7	-0.161249	-1.231	11
BUDD	-0.4162113	-2.86	13	-0.6847943	-5.837	19
BURNET	0.157149	0.763	5	-0.3405436	-2.283	19

Table A.3 Continued	1990			1997		
School	Parameter Estimate	*t*	# of sales	Parameter Estimate	*t*	# of sales
BUSH	0.2246421	3.268	34	0.0654504	1.174	46
BUSHMAN	-0.348167	-2.317	8	-1.186644	-6.253	2
CABELL	0.0379389	0.21	45	-0.5405245	-3.785	60
CAILLET	0.0097448	0.054	37	-0.452788	-3.18	57
CANNADAY	0.2944476	1.591	28	0.0936848	0.643	38
CANYON CREEK	0.334739	1.725	23	-0.2464973	-1.566	16
CARPENTER	0.2332651	2.341	29	0.0946454	1.152	33
CARR	-0.7293598	-2.504	1	-1.056742	-5.737	4
CARROLLTON	0.2949099	1.497	9	-0.4796644	-3.106	12
CASA VIEW	0.0992794	0.565	50	-0.195198	-1.397	66
CENTRAL_CA	0.3255233	1.778	41	-0.3261138	-2.258	40
CENTRAL_DU	0.1800998	2.653	24	0.185574	3.522	42
CHAVEZ	-0.8422423	-4.204	7	-1.344927	-6.903	3
COCHRAN	-0.0382527	-0.329	11	-0.1479047	-1.43	10
COCKRILL HILL	0.1482666	2.262	45	0.1151206	2.255	76
CONNER	0.0671882	0.401	42	-0.2208264	-1.634	41
COTTONWOOD	0.6727954	3.056	11	-0.2656252	-1.518	16
COUNTRY PLACE	0.3045508	1.672	44	-0.4298208	-3.022	51
COWART	-0.111036	-1.008	38	-0.3697324	-3.808	28
CROCKETT	-0.3944854	-2.463	3	-0.2932078	-3.338	14
CSWINN	-0.1521388	-0.812	3	-0.1702096	-1.471	11
CUELLAR	-0.0392729	-0.24	39	-0.1232911	-0.937	27
DARTMOUTH	0.3358402	1.753	48	-0.1574291	-1.037	48
DAVIS_CA	0.2075771	1.103	54	-0.5615081	-3.789	39
DAVIS_DA	-0.0351268	-0.298	19	-0.3347859	-3.27	16
DAVIS_IR	0.7242156	4.525	29	0.1989458	1.552	50
DEGOLYER	0.0777063	0.438	60	-0.4458857	-3.171	102
DENTON CREEK	0.4224103	2.064	14	-0.3700605	-2.334	25
DICKENSON	-0.104914	-1.647	42	-0.1424217	-2.585	39
DOBIE	0.2383916	1.037	3	-0.388242	-2.268	6
DONALD	-0.0600984	-0.47	10	-0.3260032	-3.443	26
DORSEY	-0.0339231	-0.206	15	-0.2529066	-1.989	24
DOUGLASS	-0.1037609	-0.469	2	-0.7736232	-4.439	3
DOVER	0.2108855	1.127	24	-0.3390739	-2.304	34
EISENHOWER	0.5397194	5.019	33	0.1461743	1.73	42
ELLIOTT	0.3413746	2.662	41	0.0830936	0.796	44
FAIRMEADOWS	0.204733	3.38	58	0.1726131	3.326	62
FANNIN_GP	-0.2254611	-1.846	10	-0.2110796	-2.085	12
FARINE	0.5552029	3.042	62	0.1356335	0.937	73
FARMERS BRANCH	0.2434076	1.336	39	-0.4538405	-3.147	40
FLORENCE	0.1547521	0.844	26	-0.0778681	-0.535	30
FLORENCE HILL	0.0827756	1.232	25	-0.0243727	-0.429	29
FLOYD	0.060739	0.32	9	-0.2923735	-1.949	11

Table A.3 Continued	1990			1997		
School	Parameter Estimate	*t*	# of Sales	Parameter Estimate	*t*	# of Sales
FORESTRIDGE	0.2745494	1.502	55	-0.2126529	-1.471	61
FOSTER	-0.074958	-0.429	48	-0.494143	-3.49	48
FRANK	0.4276341	2.34	82	-0.2057985	-1.439	86
FRAZIER	-0.6590607	-2.233	1	-1.946551	-10.354	3
FURNEAUX	0.1373321	0.737	88	-0.5924405	-4.068	73
GALLOWAY	0.0551423	0.314	21	-0.0900041	-0.652	32
GARNER	0.0829152	1.289	28	0.043063	0.818	35
GILL	0.2239429	1.26	51	-0.104677	-0.743	65
GOOCH	0.156456	0.863	69	-0.5166638	-3.572	56
GOOD_CA	0.3648529	1.979	42	-0.4011862	-2.804	63
GOOD_IR	0.250869	1.452	19	-0.0203046	-0.147	31
GREENWOOD	0.1473297	0.779	32	-0.3880307	-2.605	38
HALL	0.0015522	0.014	20	-0.1886908	-1.967	19
HAMILTON PARK	0.2233485	0.992	3	-0.406912	-1.889	2
HANBY	0.1482229	0.792	28	0.0128941	0.087	30
HANES	0.6664963	3.645	44	0.0541242	0.371	57
HASTINGS	0.2864332	5.754	62	0.2161647	5.013	72
HAWTHORNE	-0.0673909	-0.431	27	-0.1702736	-1.386	45
HEIGHTS	0.3292942	1.793	67	-0.244877	-1.695	82
HENDERSON	-0.1968403	-1.687	57	-0.3312915	-3.518	78
HERNANDEZ	-0.3930357	-2.165	15	-0.3782972	-2.557	16
HEXTER	0.2831223	1.653	82	-0.0421808	-0.31	120
HIGH POINTE	0.1174134	2.347	46	-0.008853	-0.221	73
HIGHLANDS	-0.1268527	-1.814	33	-0.1578562	-2.817	47
HODGES	0.0410046	0.225	39	-0.0799549	-0.572	62
HOGG	-0.5568185	-3.428	14	-1.022564	-7.605	13
HOOE	-0.158012	-1.298	29	-0.4580092	-4.654	45
HOTCHKISS	0.3049588	1.64	11	-0.2021099	-1.411	26
HOUSTION_GP	0.2660108	2.629	18	0.008284	0.104	30
HOUSTON_DA	-0.3867222	-2.119	17	-0.600557	-4.065	20
HOUSTON_LA	0.090864	0.833	11	-0.0764276	-0.87	14
HYER	0.6052197	3.481	72	0.3091761	2.21	68
IRELAND	-0.1362402	-0.885	25	-0.1831514	-1.515	44
JAMES_DUNBAR	-0.5073591	-1.727	1	-1.843797	-8.772	2
JESS HARBEN	0.3374584	1.82	44	-0.1995579	-1.354	41
JOHNSON_GP	0.1751298	1.979	12	-0.086429	-1.265	19
JOHNSTON_DA	-0.4928113	-2.479	3	-0.750729	-5.226	6
JOHNSTON_IR	0.5216598	2.916	39	0.0853825	0.601	46
JONES	0.0522094	0.295	3	-0.3832932	-2.968	6
JQADAMS	-0.1188328	-0.766	32	-0.2244436	-1.849	58
J_HALEY	0.1924502	1.25	18	0.060433	0.494	30
KAHN	-0.0927339	-0.714	37	-0.2368636	-2.288	57
KENT	0.4293507	2.294	49	-0.3661151	-2.5	47

Table A.3 Continued	1990			1997		
School	Parameter Estimate	*t*	# of Sales	Parameter Estimate	*t*	# of Sales
KEYES	0.241408	1.323	10	-0.0955732	-0.64	10
KIEST	0.0431257	0.247	37	-0.2394977	-1.718	46
KIMBALL	0.2945813	1.552	18	0.0316919	0.212	26
KLEBERG	-0.1248666	-0.553	3	-0.2111813	-1.399	10
KNIGHT	-0.420109	-2.356	14	-0.7437217	-5.3	29
KRAMER	0.4113294	2.298	122	-0.1232187	-0.87	164
LAGOW	-0.0451316	-0.247	11	-0.1583663	-0.952	5
LAKE HIGHLAND	0.3868788	2.219	75	-0.0150656	-0.108	74
LAKESIDE	0.2317523	0.894	2	-0.3309678	-1.997	12
LAKEWOOD_MATA	0.1918051	1.134	248	-0.0351191	-0.26	359
LAMAR	0.2227845	1.461	4	-0.0204099	-0.209	13
LANDRY	0.5490176	2.783	28	-0.1833548	-1.183	39
LANIER	-0.8367029	-2.916	1	-1.104743	-6.601	4
LAS COLINAS	1.0454	4.949	25	0.1728097	1.03	23
LAWRENCE	0.0060413	0.031	8	-0.1824674	-1.248	19
LEE_CP	0.5790818	2.9	39	-0.2689092	-1.694	33
LEE_IR	0.7702043	4.195	70	0.1820085	1.242	54
LIPSCOMB	-0.4105462	-2.302	31	-0.6082908	-4.291	61
LISBON	-0.5837892	-2.887	2	-0.9043289	-6.298	4
LIVELY	0.4322284	2.63	52	0.0553943	0.425	63
MACON	-0.1095575	-0.678	14	-0.183004	-1.462	25
MAPLE LAWN	-0.131935	-0.67	6	-0.4482771	-2.822	8
MARCUS	-0.0231405	-0.127	28	-0.4815003	-3.36	49
MARSALIS	0.1802552	1.479	9	0.1527252	1.105	4
MARSHALL_OLIVER	-0.0060675	-0.038	4	-0.3605769	-3.521	17
MCCOY	0.2670568	1.445	33	-0.4612621	-3.122	24
MCKAMY	0.294318	1.576	23	-0.464711	-3.1	17
MCKENZIE	0.2018355	1.128	20	-0.0822565	-0.574	24
MCLAUGHLIN	0.2848198	1.582	76	-0.3648077	-2.59	109
MCMILLAN_PATTON_T	-1.123153	-6.166	3	-0.562759	-3.82	4
MCNAIR	0.4417889	3.831	7	0.3179019	3.11	7
MCWHORTER	0.0309035	0.177	38	-0.0795332	-0.573	33
MERRIFIELD	0.209766	4.221	84	0.1476672	3.533	96
MERRIMAN PARK	0.330649	1.894	81	-0.1358365	-0.98	90
MILAM_DA	0.5513268	2.689	5	0.1340591	0.741	7
MILAM_GP	0.2722338	3.219	18	-0.0970342	-1.42	26
MILLBROOK	0.1940835	1.964	27	0.1478495	1.969	52
MILLER	-0.1671602	-1.079	8	-0.6020761	-4.653	8
MILLS	-0.3751906	-1.949	3	-0.9322641	-7.429	12
MJACKSON_PEASE	-0.0261459	-0.124	2	-0.3892136	-2.603	4
MOATES	-0.1776627	-1.938	24	-0.1151879	-1.588	31
MOCKINGBIRD	0.6061077	3.067	73	-0.1682626	-1.084	90
MOHAWK	0.3453068	1.852	46	-0.3255434	-2.094	14

Table A.3 Continued	1990 Parameter Estimate	t	# of Sales	1997 Parameter Estimate	t	# of Sales
School						
MONTGOMERY	0.1968164	1.066	26	-0.4816044	-3.327	36
MORENO	-0.0859943	-0.784	61	-0.2676278	-2.979	84
MOSELEY	-0.362286	-2.105	8	-0.3562966	-2.702	19
MOSS	0.3632264	1.944	26	0.2002574	1.358	25
MOSS HAVEN	0.4361395	2.477	95	-0.1323898	-0.946	86
MOTLEY	-0.0711801	-0.389	15	-0.2696011	-1.723	9
MOUNT AUBURN	-0.8179808	-4.553	18	-1.000063	-6.992	26
NATHAN ADAMS	0.1689882	0.914	56	-0.4319368	-2.95	72
NATHAN ADAMS_T	0.3105272	1.688	36	-0.4784077	-3.318	36
NORTHLAKE	0.3795939	2.121	28	-0.1131848	-0.802	46
NORTHRICH	0.1868649	0.992	46	-0.3774689	-2.533	44
NORTHSIDE	0.2466886	3.598	56	0.2515846	4.485	64
NORTHWOOD	0.4034615	2.166	32	-0.2374014	-1.629	51
OHENRY	0.1183272	0.634	31	-0.2695718	-1.785	23
PEABODY	-0.1960889	-1.607	23	-0.2479514	-2.495	30
PEELER	-0.7437251	-5.108	15	-0.7413002	-6.015	13
PERSHING	0.3091173	1.722	130	-0.2600676	-1.83	171
PINKERTON	0.6643068	3.152	40	-0.0781054	-0.462	36
PIRRUNG	0.2726188	1.197	7	0.150553	0.864	11
PLEASANT GROVE	-0.0714103	-0.447	56	-0.1187688	-0.94	62
PLEASANT RUN	0.0743251	0.713	25	0.0428137	0.536	42
PLUMMER	-0.1548122	-1.864	21	-0.217426	-2.978	22
POLK	-0.8772806	-4.305	5	-0.8471752	-5.732	19
PORTER	0.4005026	2.09	29	0.1514575	1.002	40
POWELL	0.2549204	3.489	16	0.2894941	5.603	33
PRAIRIE CREEK	0.4643445	2.386	27	-0.0668119	-0.434	31
PRESTON HOLLOW	0.4195438	2.413	215	0.0465185	0.335	244
PRESTONWOOD	0.413688	2.259	91	-0.341913	-2.387	111
PRICE	0.3305026	1.754	69	0.0861731	0.581	64
RAINWATER	0.3302769	1.8	98	-0.4622225	-3.227	72
RANGE	0.0702199	0.4	22	-0.0862698	-0.62	33
RAY	-0.5312463	-2.703	12	-0.6567696	-4.299	28
RAYBURN	0.0449575	0.555	17	-0.0673159	-0.974	21
RE LEE	-0.3388125	-1.937	62	-0.457121	-3.27	92
REAGAN	-0.5679442	-3.138	4	-0.6346824	-3.224	2
REILLY	0.2880313	1.659	91	-0.0762941	-0.553	126
REINHARDT	0.1838909	1.078	66	-0.1546816	-1.143	117
RHOADS	-1.092526	-3.688	1	-1.62543	-9.41	4
RICE	-1.015671	-4.332	2	-1.136691	-7.829	12
RICHLAND	0.3255377	1.788	46	-0.2107471	-1.473	70
ROBERTS	-1.357166	-6.05	3	-1.595711	-8.341	3
ROGERS	0.0473181	0.273	55	-0.244366	-1.777	101
ROLLING HILLS	0.2248306	1.966	11	0.1715283	2.155	23

Table A.3 Continued	1990			1997		
School	Parameter Estimate	*t*	# of Sales	Parameter Estimate	*t*	# of Sales
ROSEMEADE	0.3267492	1.749	78	-0.4762562	-3.257	66
ROSEMONT	-0.142539	-1.003	93	-0.305936	-2.676	127
ROWE	-0.0371795	-0.229	65	-0.3029228	-2.337	74
RUGEL	0.3364493	1.923	31	0.0977871	0.694	34
RUNYON	-0.0132801	-0.08	35	-0.2326322	-1.753	34
RUTHERFORD	0.2416452	1.208	27	0.1070721	0.696	37
SALDIVAR	-0.0590683	-0.279	4	-0.3786481	-2.386	9
SAN JACINTO	-0.0234294	-0.144	18	-0.2074017	-1.645	37
SANGER	0.0578494	0.341	43	0.0163278	0.121	80
SCHULZE	0.0564897	0.372	20	-0.3163097	-2.622	26
SEABOURN	0.2946919	1.621	12	-0.1174488	-0.833	21
SEAGOVILL_CENTRAL	-0.2092271	-0.847	17	-0.3612716	-1.959	27
SEGUIN_RUSSELL	-0.4354727	-3.001	8	-0.53339	-4.54	10
SHANDS	0.1371125	0.763	44	-0.1168857	-0.824	58
SHAW	0.2537722	1.295	64	0.1164764	0.767	66
SHEFFIELD	0.2582281	1.395	94	-0.5106884	-3.566	118
SILBERSTEIN	-0.3811712	-2.345	28	-0.7150829	-5.508	39
SJACKSON	0.0074405	0.043	156	-0.1160418	-0.84	212
SKYVIEW	0.403978	2.258	36	-0.2034126	-1.434	46
SMITH_DU	0.4834752	10.796	69	0.3660459	8.946	62
SMITH_ME	0.2560317	1.22	18	0.1061723	0.668	30
SPRING CREEK	0.2099564	1.135	42	-0.4057335	-2.79	49
SPRING VALLEY	0.2215302	1.21	60	-0.4093242	-2.829	67
SPRINGRIDGE	0.3135948	1.674	56	-0.1466072	-0.979	39
STARK	0.1703697	0.922	22	-0.3914011	-2.68	29
STEMMONS	0.1671759	1.6	15	0.0223909	0.248	15
STEVENS PARK	-0.0715612	-0.48	11	-0.29401	-2.065	6
STULTS ROAD	0.0289364	0.148	8	-0.3831895	-2.581	20
SUNNYVALE	0.5331774	2.612	15	0.6100947	3.745	20
TERRACE	0.1916058	1.034	46	-0.2512547	-1.718	52
TERRY	0.1902328	1.807	14	-0.0126311	-0.158	27
THOMPSON_CA	0.1344766	0.73	58	-0.5710311	-3.983	61
THOMPSON_ME	-0.055881	-0.169	1	0.0524482	0.231	2
THORNTON	0.223377	1.864	11	0.129108	1.372	19
TISINGER	0.1683209	0.897	24	0.0661868	0.453	41
TITCHE	0.0409171	0.248	38	-0.1179526	-0.888	34
TOLBERT	0.2025523	2.118	22	0.0585756	0.643	14
TOSCH	0.194142	1.102	33	0.0517609	0.371	43
TOWN CENTER	0.5606137	2.747	26	-0.2760774	-1.656	16
TOWNLEY	0.2586219	1.939	55	0.0289425	0.263	36
TRAVIS_GP	0.2913513	2.674	17	-0.2403478	-2.668	20
TRUETT	0.1266018	0.729	25	-0.1958414	-1.434	52
TURNER	0.4557123	5.048	33	0.2344902	3.227	49

Table A.3 Continued	1990			1997		
School	Parameter Estimate	*t*	# of Sales	Parameter Estimate	*t*	# of Sales
TURNER	0.4557123	5.048	33	0.2344902	3.227	49
TWAIN_DA	0.2288741	2.192	19	0.116193	1.367	24
TWAIN_RI	0.245648	1.275	20	-0.2221846	-1.407	14
T_HALEY	0.6364912	3.265	21	0.0372974	0.242	37
U LEE	0.2379918	2.406	16	0.1485168	1.658	13
UNIVERSITY PARK	0.5439778	3.144	97	0.2529928	1.826	114
URBAN PARK	-0.1850832	-1.129	22	-0.4722985	-3.655	42
VALLEY RANCH	0.6436881	3.243	39	-0.0757236	-0.485	58
WALLACE	0.3665212	2.09	65	-0.0645494	-0.464	96
WALNUT HILL	0.2193907	1.262	112	-0.1733571	-1.251	191
WATERFORD	0.0953837	1.727	42	0.0195155	0.395	44
WEBSTER	0.1902374	2.153	33	0.0918245	1.179	41
WEISS	-0.3956599	-2.857	4	-0.0128836	-0.11	5
WEST MAIN	0.0767938	0.749	32	0.0437733	0.512	33
WHITE ROCK	0.2820639	1.608	40	-0.1229366	-0.882	53
WILLIAMS	0.3535645	2.071	164	0.0910939	0.665	230
WILSON	0.650754	3.046	25	-0.2635963	-1.551	37
WINNETKA	-0.4383232	-3.109	11	-0.5996089	-5.36	19
WITHERS	0.2158147	1.208	80	-0.2638288	-1.855	88
WITHERS_T	-0.0720238	-0.401	25	-0.41989	-2.908	31
YALE	0.3106051	1.595	87	-0.2128028	-1.391	115
YOUNG_DA	-0.1018579	-0.375	1	-0.6151213	-4.449	5
YOUNG_DE	0.4343018	7.188	65	0.3588389	7.59	112
ZARAGOZA	-0.4175934	-1.391	1	-1.275741	-6.937	4
ZAVALA	0.1906003	3.385	54	0.0624823	1.297	59
livarea90	0.0002617	35.641		0.0002277	33.553	
dalcbd83	-0.226204	-11.773		-0.2358503	-15.09	
dfwair83	0.0773127	2.841		-0.0079526	-0.334	
galleria	-0.0710037	-5.772		-0.1157994	-11.099	
lascol83	-0.0551942	-2.589		0.0139352	0.732	
baths	0.0789001	13.059		0.0797444	15.493	
pool	0.010699	4.558		0.0127666	5.755	
white	0.0051249	12.94		0.0042696	13.122	
AgeH	-0.0257685	-23.202		-0.0214491	-19.628	
Dalcbdsq	0.0064431	4.308		0.0083296	6.514	
Gallersq	0.0017229	2.64		0.0022003	3.91	
DFWsq	-0.0057644	-3.036		-0.003049	-1.889	
LasColsq	0.0087946	2.667		0.0053584	1.904	
AgeHsq	0.0002821	18.665		0.000163	11.046	
livage**	9.10E-06	22.389		4.53E-06	10.574	
livagesq	-1.18E-07	-25.173		-1.83E-08	-2.97	

*This variable contains the constant for the model
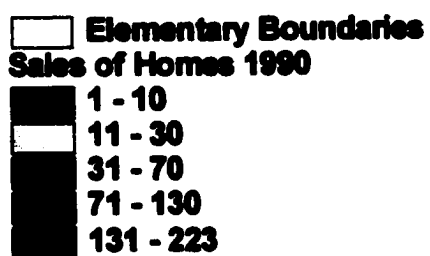**This is an interaction variable between living area and age of house

Figure A.1 Comparison of ISD Funding per Pupil

Dallas County School Districts Funding per Pupil 1989/1997

School Districts

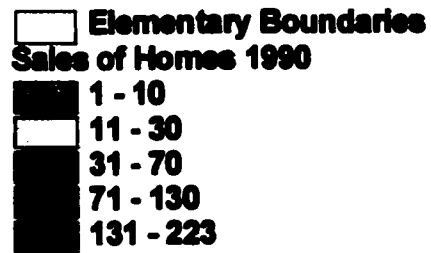Funding per pupil 1989
Funding per pupil 1997
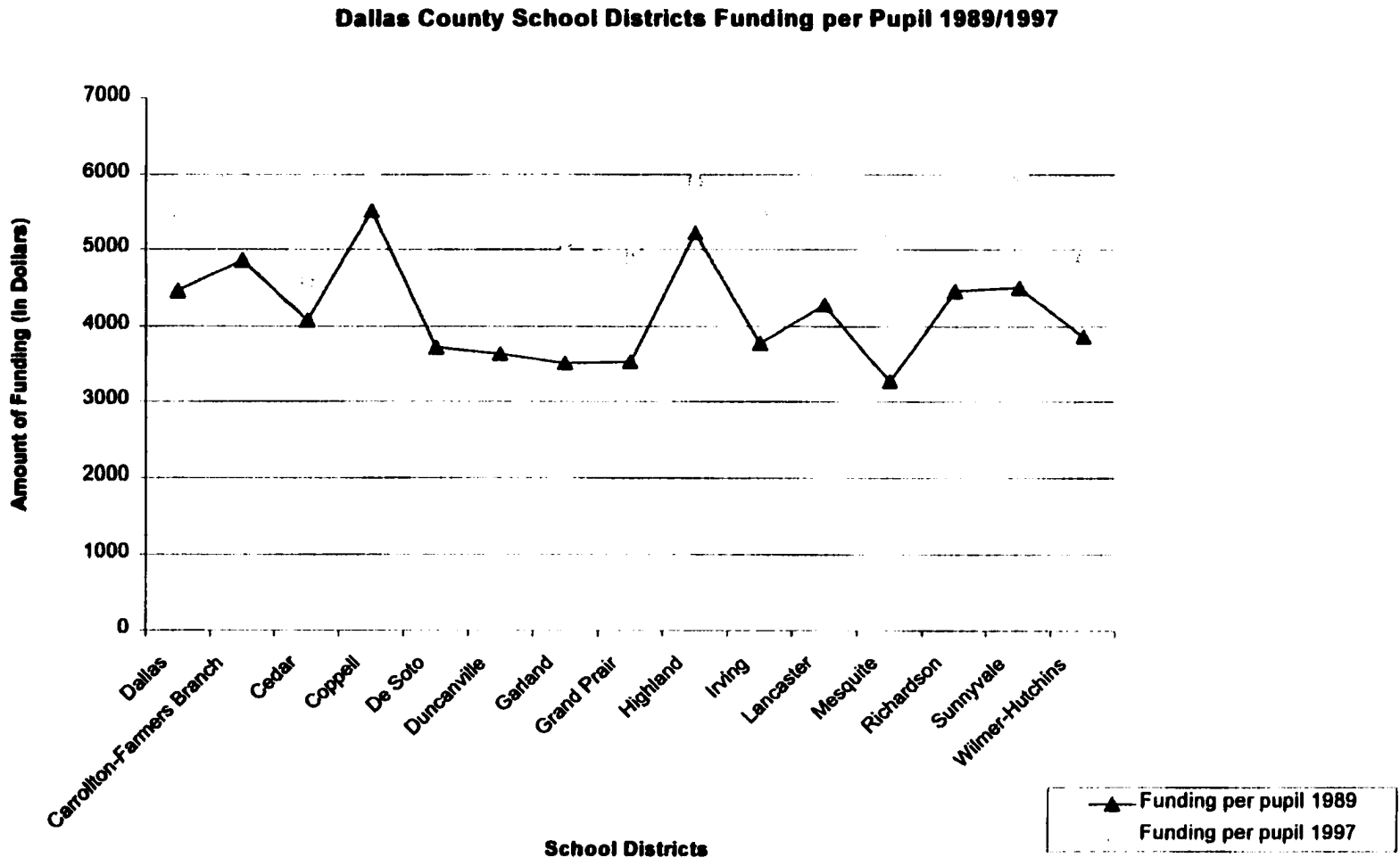
A.1. Maps showing characteristics of Elementary School Zones

The following maps help give a picture of some of the elementary school attendance zones attributes and the homes sold in the area.
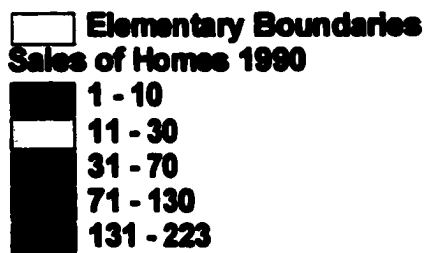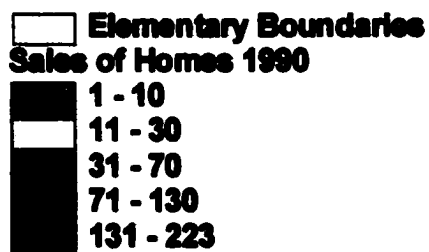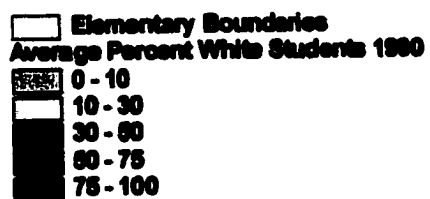
Number of Homes Sold in 1990

Elementary Boundaries
Sales of Homes 1990
- 1 - 10
- 11 - 30
- 31 - 70
- 71 - 130
- 131 - 223

Number of Homes Sold 1997

Elementary Boundaries

Sales of Homes 1990

- 1 - 10
- 11 - 30
- 31 - 70
- 71 - 130
- 131 - 223

Average Price of Home 1990

☐ Elementary Boundaries
Sales of Homes 1990

- ■ 1 - 10
- ☐ 11 - 30
- 31 - 70
- 71 - 130
- ■ 131 - 223

Average Price of Homes 1997

Elementary Boundaries
Sales of Homes 1990
1 - 10
11 - 30
31 - 70
71 - 130
131 - 223

Percent White Students in Schools in 1990

Elementary Boundaries
Average Percent White Students 1990
0 - 10
10 - 30
30 - 60
60 - 75
75 - 100

Percent White Students in 1997

Elementary Boundaries
Average Percent White Students 1997
- 0 - 10
- 10 - 30
- 30 - 50
- 50 - 75
- 75 - 100
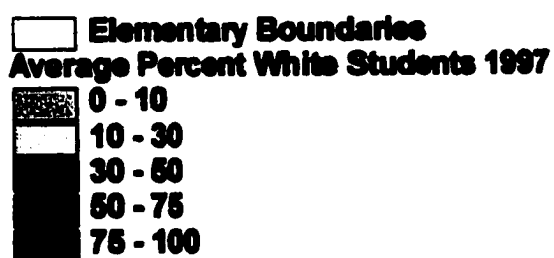
Correlation of Price to TAAS 1990 and 1997
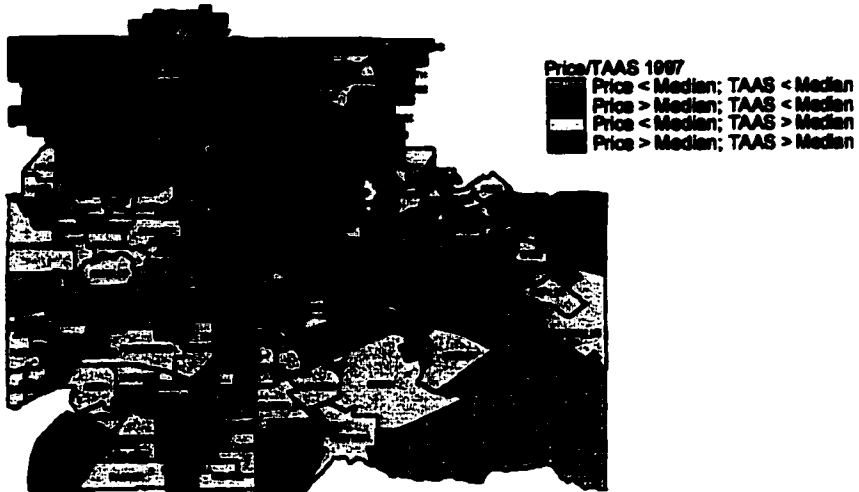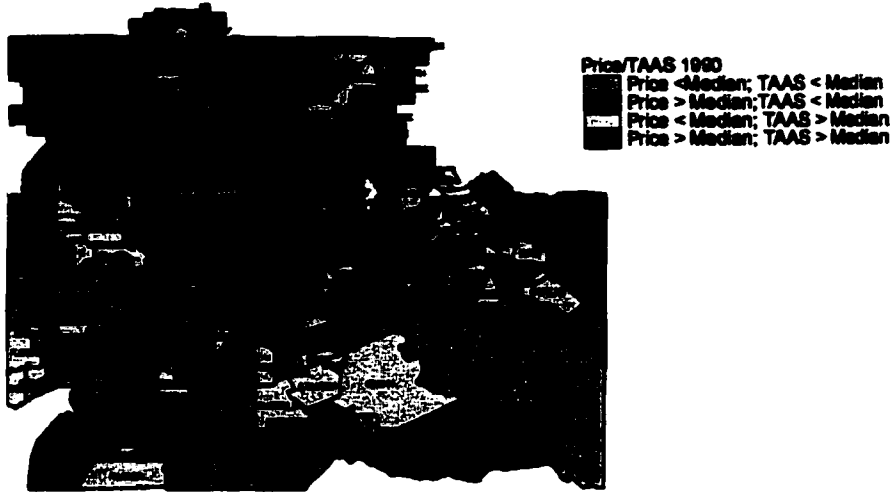
Correlation of TAAS and Funding per Pupil 1990

Crosstab for TAAS/Funding 1990

- TAAS < Median; Funding < Median
- TAAS > Median; Funding < Median
- TAAS < Median; Funding > Median
- TAAS > Median; Funding > Median

10   0   10   20 Miles
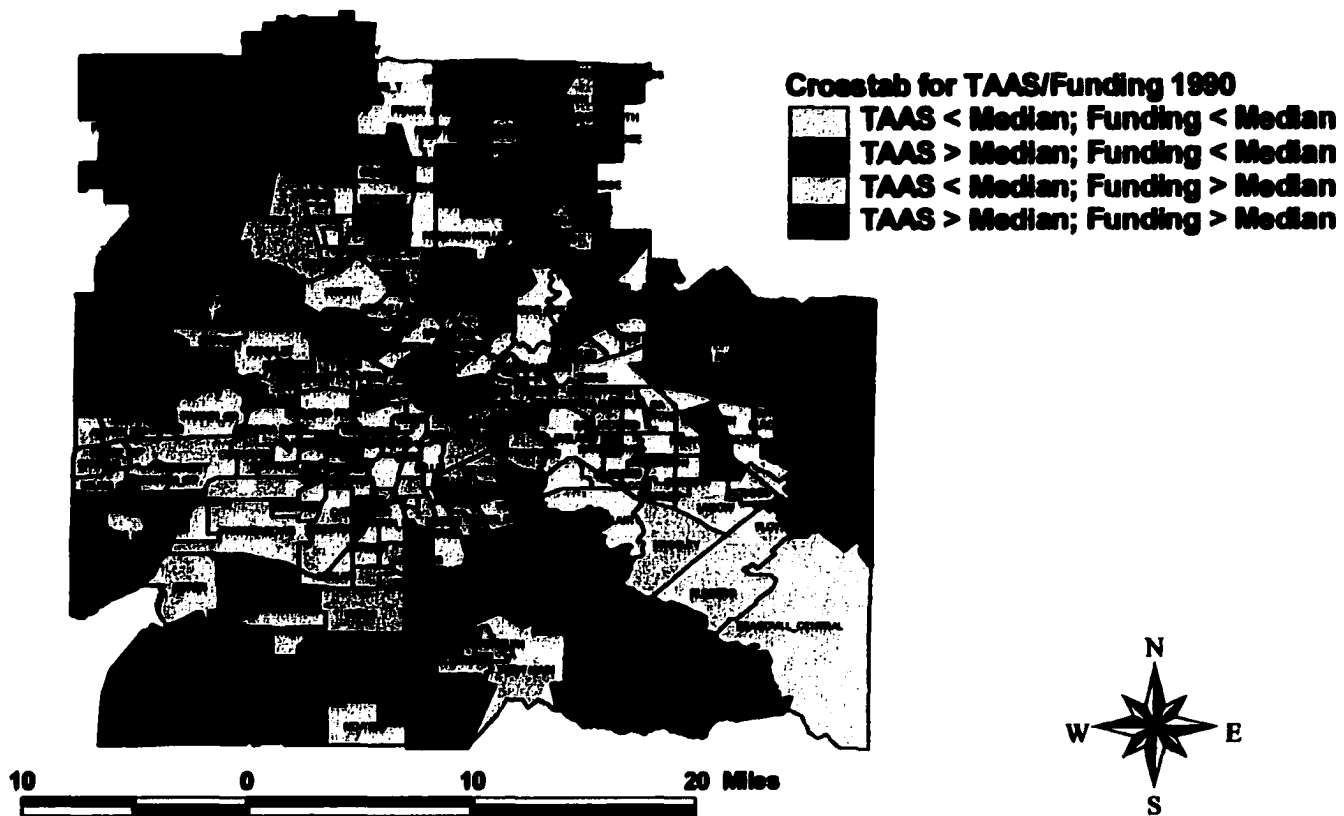
Correlation of TAAS to Funding per Pupil 1997

Crosstab for TAAS/Funding 1997

TAAS < Median; Funding < Median
TAAS > Median; Funding < Median
TAAS < Median; Funding > Median
TAAS > Median; Funding > Median

N
W   E
S

10   0   10   20 Miles
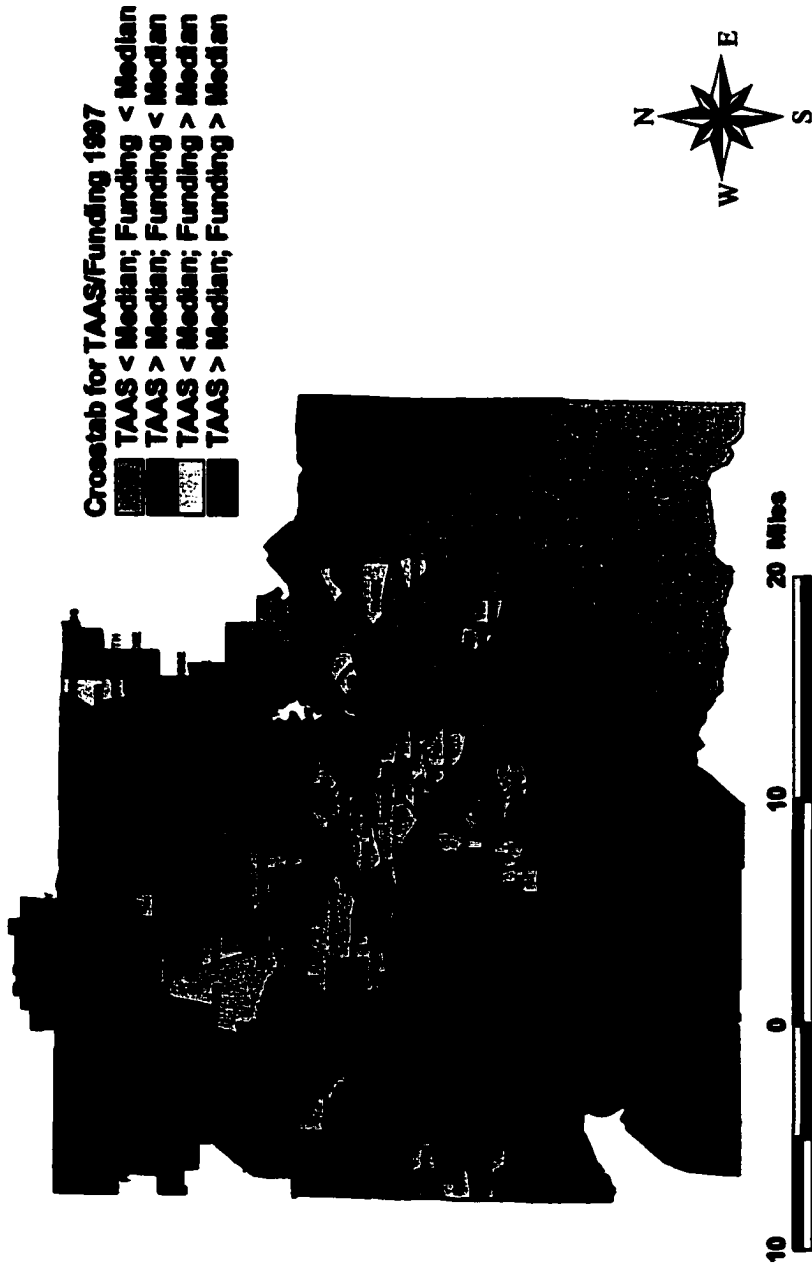
DEFINITIONS

Academic Excellence Indicators System (AEIS) – A system of indicators established by the legislature and adopted by the State Board of Education to help determine the quality of learning on a campus and in the school district. The indicators include passing rates on the state competency tests (TAAS), attendance, graduation rates, dropout rates, and scores on college entrance exams. The state will assess district and school performance compared with state level standards. The AEIS is the foundation for a school district's accreditation rating.

Actual Tax Rate or Nominal Tax Rate – The tax rate levied by school districts and used to calculate tax bills.

Ad Valorum – Latin for "according to valuation", usually referring to a type of tax or assessment.

Amenities – Features, both tangible and intangible, which enhance and add to the desirability of real estate.

Appraisal – The process of estimating, fixing, or setting the market value of real property. An appraisal may take the form of a lengthy report, a completed form, a simple letter, or even an oral report.

Appreciation – An increase in the temporary or permanent value of property due to economic or related causes.

Assessed Valuation – The value of real property as established by the state government for purposes of computing real property values.

Assessment – A specific levy for a definite purpose, such as adding curbs or sewers in a neighborhood. Individual condominium owners are subject to special assessments benefiting the project as a whole and not funded through regular maintenance charges.

Available School Fund (ASF) – Created by the Texas Constitution of 1876, the ASF is made up of earnings from the Permanent School Fund and constitutionally dedicated motor fuel taxes and other miscellaneous revenue sources. The bulk of ASF revenue is

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distributed on a per capita basis to school districts. A portion provides funding for free textbooks for schoolchildren.

Average Daily Attendance (ADA) – A method of counting students for the purpose of providing state aid to school districts. Currently, Texas counts students in attendance each day and averages the attendance count over the year.

Basic Allotment – The initial or starting number that, after adjustment, is used to calculate foundation program costs and state aid to school districts.

Capitalization – A mathematical process for converting net income into an indication of value, commonly used in the income approach to appraisal.

Caps – A general term that describes statutory limits on tax rates, revenues, or increases in school district expenditures.

Categorical Aid – State aid distributed to school districts for specific uses or purposes. Transportation aid is an example of categorical aid.

Central Appraisal District (CAD) – Each county (some multi-counties) has established an appraisal district office that is responsible for maintaining taxable real and personal property records and placing a value on all property for taxation purposes. A chief appraiser, an individual appointed by an appraisal district board of directors, which is elected by certain taxing entities, heads the CAD office.

Chapter 41 District – Refers to Chapter 41 of the Texas Education Code, which pertains to school districts with property wealth in excess of $280,000 per weighted student and subject to recapture provisions.

Chapter 41 Options – Provides school districts with property wealth in excess of $280,000 per weighted ADA with five options to reduce their property wealth to the $280,000 threshold. These include, (1) District consolidation by board action. (2) Detachment and annexation of property by board action. (3) Purchase of attendance credits from the state (vote required). (4) Contract with other districts for educating their students (vote required). (5) Tax base consolidation.

Compensatory Education Program – The state compensatory education allotment provides additional financial support to school districts to teach educationally disadvantaged students and underachieving pupils. A program of compensatory education should provide additional services and instructional support, beyond the regular program, to help students compensate for educational deficiencies and may include programs for at-risk students. The allotment is based upon the number of students participating in the federal free or reduced lunch programs.

Cost of Education Index (CEI) or Adjustment – An index the state uses to adjust the basic allotment to account for geographic or other cost differences beyond local school district control. The Texas Legislature readopted the current CEI for the 1997-98 and 1998-99 school years.

District Wealth – In Texas, district wealth is based on taxable property value per student. State aid formulas are based on property values as determined by the State Property Tax Board. Local tax levies are calculated on the basis of values certified by the county appraisal boards.

Effective Tax Rate – The tax rate, if applied to the current local tax roll, would raise the same amount of revenue as in the previous year. This tax rate is an important element in the annual truth-in-taxation process. The term effective tax rate is also used to identify the rate used in calculating state aid to school districts. This latter rate is the actual collections divided by the prior year's taxable value determined by the state property tax division of the state comptroller's office.

Equalization – The state of, or process of achieving financial equity in a school finance system, particularly as it relates to reducing the relationship between district revenues/expenditures and district taxable wealth.

Equity – In school finance, the term refers to fair or equal distribution of resources for schooling, taking into account student differences and school district characteristics. The standard used by the Texas Supreme Court is a taxpayer equity standard, which means similar revenue for similar tax effort. In other words, the school finance system is to be property wealth neutral: a district's property tax base should have little or no impact on its ability to finance the local share of the Foundation School Program.

Foundation School Program (FSP) - A plan for the support of a basic instructional program for all Texas schoolchildren. Money to support the program comes from the Permanent School Fund, Available School Fund, Foundation School Fund, state general revenue, and local property taxes. Texas adopted a foundation program of school finance in 1949 to ensure an adequate minimum education for all children. The state establishes a foundation level called the Local Fund Assignment (LFA), which is stated in the form of a tax rate. The greater a district's property wealth results in a higher LFA. State aid makes up the difference between the LFA and the foundation level. Currently, the FSP described in Chapter 42 of the Texas Education Code consists of two parts, or tiers. The first tier provides funding for a basic program. The second tier provides a guaranteed yield system so that school systems have substantially equal access to revenue sufficient to support an accredited program.

Full-Time Equivalent Student (FTE) – Used for pupil accounting in some special programs where a student is not served for the entire school day. A student who attends off-campus vocational education classes 15 hours a week would be considered an FTE.

Guaranteed Yield – A school finance plan in which the state specifies a revenue yield that will guarantee in terms of revenue per student per penny of local tax effort. The districts adopt tax rates and levy taxes. The state makes up the difference between what each district levies locally per student and guaranteed yield per student. High wealth districts may raise their entire guaranteed yield from local tax sources.

Independent School District – The Texas Constitution permits the State Legislature to create school districts. Each district operates its schools and taxes property within the district to support, in part, the schools. The term independent refers to the fact that the school district is not part of the city or county government and has independent budgeting and taxing authority. In some states, cities or townships operate or fund schools in addition to providing other government services. Locally elected boards or trustees govern ISDs.

Interest and Sinking Fund (I&S) Tax Levy – Also called the Debt Service Fund. A tax levied and its money used to by school districts to pay for bonded indebtedness, usually construction of facilities or other capital needs.

Maintenance and Operation Tax (M&O) – A local district tax rate that raises revenue to be used for any legal purpose to operate and maintain the district's schools.

Per Pupil Expenditures – Budgeted expenditures for a student divided by the total number of students in the district or school.

Permanent School Fund (PSF) – A perpetual trust fund created by the Texas Constitution in 1876. PSF earnings go into the Available School Fund, which the state must apportion on a per capita basis to counties for students enrolled in Texas public schools after funding state textbook purchases. PSF investments include U.S. Treasury bonds, Texas municipal bonds, school district building bonds, and securities. The SBOE administers the fund under constitutional and statutory requirements.

Public Education Grant Program – Senate Bill 1 (1995) permits students in low-performing schools to attend a school in the student's home district or in another district. The amount of the grant is the total state and local funding per student for the student's home district. The receiving district may accept or reject the student and may not charge the student tuition.

Pupil Count – In Texas, pupils in average daily attendance (ADA) are used in funding formulas.

Recapture – A feature of school finance where local districts give to the state locally collected revenue above a certain ceiling or limit. The state redistributes the money to

poorer school districts or reduces state aid for districts receiving funds under the other Chapter 41 options.

School Finance Equalization – The allocation of state education aid in inverse relationship to the local school district property wealth per pupil.

State Board of Education (SBOE) – A 15 member body elected by general election (staggered four-year terms) from various regions statewide to provide leadership and to adopt rules and policies for public education in the state.

State Property Tax Board (SPTB) – Establishes district property values for use in calculating state aid.

Tax Effort – Tax rates levied by a school district to cover expenditures for maintenance and operation, and in some formulas, debt service.

Technology Allotment – This allotment is now a part of the textbook fund and can be used to purchase electronic textbooks or technological equipment that contributes to student learning or teacher training. The allotment is $30 per ADA.

Texas Assessment of Academic Skills (TAAS) – A state developed test administered each year to grades 3, 8 and 10 (exit level) to determine student achievement levels on state established learning objectives. High school students are given four opportunities to pass the TAAS exit test before graduation. Students may continue taking the test even after completing grade 12.

TAAS Participation Report – Every student enrolled in Texas public schools in grades 3 through 8 and grade 10 must be given the opportunity to take the TAAS test.

TAAS Passing Standard – To pass and meet the minimum standards on the TAAS exit-level test, a student must correctly answer 70-percent of the items based on 1990 standards. In the spring of 1994 the passing standards in reading and mathematics at grades 3 through 8 were aligned with the exit-level standard in order to measure student achievement across time. Students achieving a Texas Learning Index (TLI) score of 70 or higher meet minimum expectations in reading and mathematics. On the writing test students must achieve a scale score of 1500 or higher to meet minimum expectations.

Texas Education Agency (TEA) – The administrative and regulatory unit for the Texas public school system, managed by the commissioner of education. TEA is responsible for implementing public school policies as established by the Legislature, SBOE, and the commissioner of education.

Weighted Program Plan – A system of funding formula adjustments, which generate revenues for additional program costs to educate certain special students. It's also known

as the weighted pupil plan. The regular student is given a weight of 1.00. Other students, depending on the percentage of costs above that of the regular student, are assigned specific weights. In Texas those weights include vocational education, 1.45, compensatory education, 1.20, and bi-lingual education, 1.10. Special Education weights range from 2.0 to 10.0, depending on the complexity of the instructional needs.

Weighted Students in Average Daily Attendance (WADA) – In Texas, students with special education needs are weighted for funding purposes to help recognize the additional costs of educating those students. Weighted programs include special education, vocational, bi-lingual, gifted and talented and compensatory education. A weighted student count is used to distribute guaranteed yield funding.

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VITA

Linda Loubert was raised in the state of Kansas where she obtained her primary, secondary and higher education. Her parents are the late Rev. Joseph E. Jones, and Mrs. Lizzie B. Jones. She developed her love for political economy from her father who served as a leader in the community fighting for civil rights issues. Her degree from the University of Kansas in Lawrence and her internship at Jewish Hospital in Cincinnati, Ohio led her into medical technology where she worked for many years. During this time she married her first husband and bore two children, Gregory and Christina Lawson. As the wife of a professional football player she learned about the social aspects of society, which helped her to question inequities in life from a deeper perspective. She spent five years as a pharmaceutical sales representative where she had the opportunity to develop sales skills that served her well in later careers. She also obtained a degree in Public Affairs from Park College in Kansas City, MO. She had anticipated a job with in government because she became a paid staffer for a candidate running for president. The candidate did not gain the bid for president and she was left to find other employment. She came to Dallas, TX in 1990 married to her second husband, Charles Loubert, working for the Girl Scouts in the area after leaving a Girl Scouts council in Lorain, OH. Before beginning her full time studies at the University of Texas at Dallas she worked for Kaiser Permanente as a medical technologist and membership analyst.