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THREE ESSAYS IN EDUCATION POLICY: SCHOOL FACILITIES, EMPLOYEE BENEFITS AND REFUGEE EDUCATION

By

Thomas Edward Davis

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ABSTRACT

THREE ESSAYS IN EDUCATION POLICY: SCHOOL FACILITIES, EMPLOYEE BENEFITS AND REFUGEE EDUCATION

By

Thomas Edward Davis

My dissertation consists of three essays in education policy. The first essay analyzes the link between school facilities and student performance on standardized tests with a production function model. The second essay investigates whether a statewide single-payer healthcare plan for school employees slows the rate of growth in expenditure for employee benefits. Finally, the third essay uses a more theoretical approach to examine the choice of policy instruments and institutions best suited to educate political refugees in their country of refuge taking into account the unique circumstances in the host country.

Chapter 1: Investigating the Link Between School Capital and Student Performance

The first essay develops a production function model based on a widely applicable measure of building capital and controls for an array of socio-economic and educational input variables to show that better facilities have a positive impact on the percentage of students who meet or exceed the requirements of the Michigan Education Assessment Program. The chapter concludes with a sophisticated sensitivity analysis that demonstrates that this conclusion is fairly robust to any potential omitted confounding variables.

Chapter 2: School Employee Healthcare: Does a Statewide Healthcare Plan Reduce Costs?

This study first shows that employee benefit costs are rising as a share of compensation while compensation is falling as a share of school district expenditure. Using a quasi-experimental design, the analysis uses financial data from the National Center for Education Statistics and employs a three-level hierarchical linear model for employee benefit expenditure to estimate the savings from the implementation of a statewide healthcare plan. Finally, the essay focuses on California and Texas to investigate the extent to which their statewide health plans slow the rate of growth of healthcare costs.

Chapter 3: Refugee Education: A Case Study in the Choice of Policy Instruments and Institutions

The third essay provides a theoretical analysis of the competing interests involved in the education of refugees in their country of asylum. First, it looks at the choice of policy instruments in the unique circumstances that surround refugees. Second, the paper describes the problems associated with picking the institutions to implement education policies and describes how precarious their authority is. The study makes use of analogy to help place the policy instruments, institutions and competing stakeholders into historical context. The backdrop for this analysis is a case study of the refugee camps in Ngara, Tanzania, which received 250,000 Rwandan refugees during a 24-hour period on April 28, 1994.

This dissertation is dedicated to both of my parents, though only one of them is here to read it.

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This dissertation has been a long time coming. I would like to thank my principal advisor, mentor, committee chairman, and co-author David Arsen. His suggestions not only guided and improved this paper, but he also helped me to frame my research questions and carry out the analyses. His advice in helping me prepare for the job market has proved invaluable. David has helped me become a better researcher by writing papers with me, and more importantly, by encouraging me to present our results at conferences, policy workshops at Michigan State University and even the state capitol. As an economist, David also eased my transition from economics to the Educational Policy Program. I would like to thank Ken Frank, whose assistance with the quantitative analysis not only made the dissertation better, but also made it unique. The insights of Jeff Biddle further strengthened my analysis and his comments at my proposal defense kept everyone on track. Gary Sykes taught me how to tackle an education policy problem and Phil Cusick helped me to appreciate the war stories from the practitioners in the trenches. I could not have asked for a better committee.

While I was putting together my committee and proposing a three-essay dissertation, Ken Frank asked me to identify the common thread. Looking back I would say that the common thread is my life experiences. The first essay grew out of the Capital Funding Project at the Education Policy Center at MSU and I would like to thank David Plank for introducing me to the Educational Policy Program and bringing me on board. Michael Sedlak has been extremely supportive and the experience that I have gained by presenting my research at conferences around the country has been

extraordinary. The second essay was inspired by a conversation that I had with Doug Roberts while I was auditing Phil Cusick's class. Writing an essay about the employee benefits of school employees took me back to my days as an actuarial student at what was then called Aetna Life and Casualty. I would like to acknowledge my two favorite supervisors there, Mike Murray and Pennell Hamilton, even if that career wasn't for me. The final essay was inspired by the most momentous event in my life: the time I spent as a Peace Corps Volunteer in Kenya. I was right next door to the atrocities in Somalia and Rwanda when they happened. I would like to thank all the Kenyans, ex-patriots and fellow Peace Corps Volunteers who have made my three trips to Kenya memorable.

The College of Education and Michigan State University have provided me with a great deal of financial support. My research has benefited from a dissertation completion fellowship and a summer research fellowship through the College of Education as well as a Spencer Research Training Grant sponsored by the Spencer Foundation and Michigan State University. Further funding came from the Center for Community and Economic Development and the Institute for Public Policy and Social Research at Michigan State University.

When I was able to take a break from graduate school and do something interesting like climb Mount Kilimanjaro, I was able to do it with some very supportive and generous friends. I would like to thank Tom Brusstar, Molly Cooke, John Francis, Sue Hasegawa, Terry Huff, Rebecca Locklin, Jan-Eric Meinecke, Meredith Miller, Chris Monroe, Frank Sant, Greg Schnurstein, and Alan Stewart. I almost forgot to mention the other half of my Educational Policy cohort, Gina Umpstead, whose organizational skills,

diligence and intelligence were an inspiration to me. And to think you did it all while being a great mom, too. I look forwards to continuing our friendship as colleagues.

Finally, I would like to thank my mother for her unyielding support in all of my globetrotting endeavors. This day is finally here.

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KEY TO ABBREVIATIONS

CalPERS	California Public Employees' Retirement System
CDE	California Department of Education
CEPI	Center for Educational Performance and Information
COE	Current Operating Expenditures
ECHO	European Community Humanitarian Office
ERT	Emergency Response Team
FAS 106	Financial Accounting Standards Board Statement 106
FRL	Free or Reduced-price Lunch
FTE	Full-Time Employee
GASB	Government Accounting Standards Board
HLM	Hierarchical Linear Model
HMO	Health Maintenance Organization
HRET	Health Research and Educational Trust
ICRC	International Committee of the Red Cross
IDP	Internally Displaced Person
IEP	Individual Education Plan
IPA	Individual Practice Arrangement
ITCV	Impact Threshold for a Confounding Variable
KFF	Kaiser Family Foundation
LEA	Local Education Agency
LEP	Limited English Proficiency

MDE	Michigan Department of Education
MEAP	Michigan Education Assessment Program
MESSA	Michigan Education Special Services Association
MHA	Ministry of Home Affairs
MOU	Memorandum of Understanding
MPSERS	Michigan Public School Employees Retirement System
NCES	National Center for Educational Statistics
NEA	National Education Association
NGO	Non-Governmental Organization
OLS	Ordinary Least Squares
PEIMS	Public Education Information Management System
PPS	Prospective Payment System
PTA	Parent-Teacher Association
RPF	Rwandan Patriotic Front
SES	Socio-Economic Status
TEA	Texas Education Agency
TEP	Teacher Emergency Package
TRS	Texas Retirement System
UAC	Unaccompanied Children
UAM	Unaccompanied Minors
UNESCO-PEER	United Nations Educational, Scientific, and Cultural Organization Programme for Emergencies and Reconstruction

UNHCR	United Nations High Commission for Refugees
UNICEF	United Nations International Children's Emergency Fund
WFP	World Food Programme

CHAPTER 1

INVESTIGATING THE LINK BETWEEN SCHOOL CAPITAL AND STUDENT PERFORMANCE

Introduction

Historically, there has been a great deal of attention paid to the architecture and quality of school buildings. As educational reformers began to revolutionize public education from the ad hoc, unregulated enterprise of the early 19th century to the professional institution we know today, they recognized the importance of school design. The schoolhouse itself became an integrated part of the education process (Cutler, 1989). In spite of the early push to build schools that enhanced the education of the nation's children, the evolution of school facilities into the 21st century has given rise to extreme differences across jurisdictions. School facilities are overwhelmingly a local responsibility, generally financed through property taxes, which, in turn, are influenced by factors such as voter preferences for education and a municipality's ability to raise revenue from the value of its taxable property.

Two centuries of public schooling have resulted in striking differences in school facilities across the country. These differences grew out of the large variety of initial designs, sizes, and locales, but they also resulted from varying degrees of construction, maintenance and refurbishing. The net result is the constellation of school facilities we have today. Were these differences random, or strictly a reflection of variations in local community preferences, there would not be the current level of interest in school facilities. What is disturbing to many is the fact that poor facilities are so clearly tied to the wealth of the communities in which they are located. If, as early reformers were

quick to claim, the schoolhouse is an integral part of the education process, then the fact that children from poor communities learn in the most run-down schools clearly violates the dictum of fiscal neutrality, which states that the quality of a child's education should not be a function of the wealth of the community in which he or she lives.

Because school facilities are highly correlated with local district wealth, the education adequacy cases before many state courts often include school facility funding. Plaintiffs' interest in school facilities got a boost from the outcome of a case in West Virginia, which established that adequate facilities were part of a "thorough and efficient" education system (*Pauley v. Bailey*, 1984; Burrup et al., 1996). Then in 1994, Arizona was the first state to overturn its funding system for school facilities as constitutionally inadequate (*Roosevelt v. Bishop*, 1994).

Unfortunately for those involved, there is no universally recognized method for estimating either the value of a school's capital stock, or any unmet financial need with regard to infrastructure. Moreover, there is not a strong body of evidence to support the conclusion that the state of school facilities impacts educational outcomes. Over two decades ago, two researchers summarized the research findings regarding the correlation of school facilities and student behavior and together they cited 238 research studies and 21 paper presentations (Weinstein, 1978; McGuffey, 1982). In all of those studies, only six were cited by two or more authors (Earthman & Lemaster, 1996). Literally hundreds of researchers have agreed with the theory that school facilities affect student behavior, but precious few have been able to produce statistically valid evidence, leading Earthman and Lemasters to conclude, "Even with this large number of studies, it is difficult to determine any definite line of consistent findings" (p.3).

This paper will use a method to estimate the capital stock of buildings in school districts that was developed at the Education Policy Center at Michigan State University (Arsen et al., 2005). The method benefits from using widely available financial data that have been standardized across all governmental units and are based on historic expenditure, not surveys. The second part of the paper uses these building capital calculations in various regression models to estimate their impact on students' standardized test scores, controlling for socio-economic status (SES) and per-pupil expenditures. The paper concludes with a discussion of the results.

Review of the Literature

Estimating the Capital Stock

In 1992, Harold Hawkins and Edward Lilley published their *Guide for School Facility Appraisal*, published by the Council of Educational Facility Planners, International, which was the first comprehensive instrument designed specifically for school facilities (Hawkins & Lilley, 1992). This guide breaks down facilities into six categories: the school site, structural and maintenance features, plant maintainability, school building safety and security, educational adequacy, and environment for education. Many states either purchased similar surveys from private firms or developed them internally, particularly those states that had court cases that involved school facilities. This guide still influences school facility surveys, though it does not offer any suggestions on how to estimate the cost of eliminating the deficiencies.

There have been a few attempts to estimate the nation's school infrastructure needs. The U.S. General Accounting Office (1995) conducted the first nationwide

comprehensive survey that estimated the cost to shore up the nation's school facilities. They estimated that $112 billion was needed to address the problems with deferred maintenance, health and safety, and accessibility issues in the infrastructure of American schools. In 2000, the National Education Association undertook the most ambitious effort to date to measure the unmet infrastructure needs of U.S. schools (NCES, 2000). This study estimated $268 billion was needed for school infrastructure needs, and an additional $54 billion for educational technology needs and it broke down these needs by state. A scaled-back version of this study was published by Crampton, Thompson and Hagey (2001), which focused on the infrastructure needs and omitted the technology estimates. The National Center for Educational Statistics (2000) produced another estimate of the cost to bring all elementary and secondary schools into good condition, placing the nationwide need at $127 billion.

Considering the fact that the NCES and NEA studies were both published in 2000, it is striking that the NEA estimated school modernization needs to be $322 billion and the NCES estimated the need to be only $127 billion. In the end, all of the estimates of unmet capital need outlined above suffer from two problems: 1) the subjective nature of survey data taken from either school personnel or outside consultants; and 2) consistency across buildings, districts, and the variables included in the analysis. While Wyoming and Ohio both have detailed cost estimates for school facilities, it is not clear that one could compare the condition of facilities in one state to the other.

Analyzing the Link Between Capital Stock and Student Performance

Studies have tried to examine possible correlations between school building conditions and student achievement on standardized tests through analysis of covariance or linear regression, controlling for the SES of the parents and other community variables. Researchers are plagued by problems of measurement and data availability. School building quality is comprised of numerous components, many of which are difficult to separate and measure accurately. In response, researchers either try to study each factor separately (as best they can), or they rely on some aggregate measure of building quality like building age, functional age, engineering appraisal score, or residual value (either market or historic cost). Those who employ production function models would like to control for socio-economic variables (SES), student background variables, teacher effectiveness, as well as school building characteristics. Further, they would like to have reliable measures of student achievement. Since many of these data are not available, researchers are forced to make due with only a small set of these potentially important factors (Picus et al., 2005).

One early attempt was the work of McGuffey and Brown (1978) in which they aimed to show the effect of school building age on student achievement. Focusing on the school district as the unit of analysis, they used the number of classrooms constructed in each decade to reflect building age. Their results were ambiguous and other researchers were critical of the decade-wide variable they used to reflect building age, their choice of the school district as the unit of analysis, and the fact that community SES was the only factor they controlled (Picus et al., 2005).

Most of the recent studies have focused on school buildings as the unit of analysis and attempted to test for the existence of a statistical correlation between facilities and student performance. Caroline Cash (1993) studied the connection between the condition of school buildings and student achievement in small rural high schools in Virginia during the 1991-92 academic year. Earthman, Cash, and Van Berkum (1995) followed Cash's original study by looking at surveys received from 120 of the 199 high schools in North Dakota filled out by school principals. Eric Hines (1996) largely replicated Cash's study for urban schools in Virginia for the 1992-93 academic year. All of these studies sought to demonstrate a correlation between either student achievement on standardized tests or student behavior (e.g., suspensions, attendance, or grade retention) and the state of school facilities, controlling for the SES of the parents.

While the evaluation of facilities was fairly complex, each of these studies winnowed the facility criteria down to a single number. They used this number to rank school facilities as below average, average, or above average and then compared the bottom group to the top. Cash's original study showed that achievement on all subtests and the overall score rose with the condition of the buildings. In addition, she found that cosmetic factors (e.g., the condition of student lockers, graffiti, and wall color) had a larger impact on student achievement than structural factors, though she offered no explanation for this. Perversely, Cash found that there were more problems with student behavior in the above average buildings than there were in the below average buildings. The follow-up study by Earthman, Cash, and Van Berkum rated school buildings on 29 criteria. For 18 of those criteria, test scores for students from schools ranked above

average were higher than those for students from schools ranked below average. In the end, the results were mixed, often statistically significant, but by no means conclusive.

Berner (1993) used a more sophisticated model for a sample of 52 elementary, middle, and high schools in Washington D.C in which she first showed that there was a positive correlation between parental involvement and school facilities and then went on to show a positive relationship between school facilities and student achievement. She used PTA membership per student and PTA budget per student as proxies for parental involvement. Her model had three possible values for the state of the school facilities: excellent, fair, and poor, based on the building condition, school age, and school size. She used an ordered logistic procedure in modeling school facilities as a function of PTA support. She then incorporated the facility variables in a regression with student achievement as the dependent variable. In the end, she did show a significant correlation between school condition and student achievement at the 5% level and her model explained 34 percent of the variation in student achievement.

In the most sophisticated study to date, Picus, Marion, Calvo, and Glenn (2005) used building condition scores on up to 22 separate building subsystems, which they aggregated into a single composite index for each public school building in Wyoming to examine the correlation between facilities and student test scores. A professional assessor and a school representative agreed upon each survey question and the subsystem scores were weighted to reflect building costs required to bring the system up to "as new" condition. In addition to the building condition scores, the researchers gathered building suitability scores provided largely by school district personnel, which measured the degree to which each building was suitable for its current use. To control for student

socio-economic status, the researchers collected data on the percentage of students eligible for free or reduced-price lunch (FRL). Finally, they assembled standardized test scores in reading, writing, and mathematics to investigate the link between the state of school infrastructure and student outcomes.

They found no correlation between building conditions and student performance. Surprisingly, they found no relationship between building conditions and the poverty level of the school (i.e., % eligible for FRL). Finally, controlling for SES, they found no significant link between building suitability scores and student performance. They had unbiased, comprehensive evaluations of school building conditions produced by professionals, building suitability scores, and reliable student-level test scores and they concluded that there was no correlation between school facilities and student achievement. The authors only controlled for one SES variable, the percentage of students eligible for free or reduced-price lunch, and they made no mention of demographic characteristics of local communities or other inputs into the education process. In the end, Picus et al. had very sophisticated measures of facilities and student achievement yet controlled for a very limited set of other factors that might affect achievement.

Where all of the previous studies looked at the correlation between facilities and student achievement, Elizabeth Harter (1999) developed an education production function that incorporated school maintenance as an independent variable in her study of 2,860 elementary schools in Texas. The dependent variables were 4th grade mathematics and reading scores on the Texas Assessment of Academic Skills test in 1992-93. She found a strong positive correlation between school upkeep and both reading and math

scores controlling for a host of variables including student SES and school expenditures on other functions.

Empirical Strategy

This analysis will proceed in three steps. First, it will incorporate the method developed in Arsen et al. (2005) to estimate the present value of the capital stock for each school district in Michigan based on the capital asset tables that all school districts are required to submit in compliance with the Government Accounting Standard Board's (GASB) Statement 34 directive on the preparation of external financial reports (Arsen et al., 2005; Arsen and Davis, 2006). Second, it will investigate the correlation between per-pupil building capital assets and student performance along the lines of most previous studies. Finally, it will incorporate the school capital assets into an education production function that controls for community variables, student SES, and includes current operating expenditures as the input. District-wide average student test scores on the Michigan Educational Assessment Program will be the dependent variable in a regression analysis that evaluates the influence of each school district's per-pupil capital stock.

This method is unhampered by the subjectivity of survey data and based on standardized accounting practices that are in use across buildings, school districts, and states. Depreciation is a time-tested measure of wear and tear that avoids the minutia of rusty fan blades, furnace efficiency, and paint color. The fact that all government buildings are required to make accountings of their infrastructure means the data are available and consistent both across jurisdictions and through time.

Picus et al. (2005) claim that the school district is a poor unit of analysis because it is "too gross of a measure to accurately assess the relationship between building condition and achievement" (p.75). I would argue that school funding decisions are made at the district level and in a state like Michigan, where the school districts are small enough to be relative homogeneous with regard to demographic factors and voter preferences, the district is an acceptable unit of analysis. The district is also relevant because most students will have experienced a number of buildings in the district by the time that they graduate from high school. Moreover, employing an aggregate measure of school capital like the depreciation-based method used here avoids the potential bias of surveys given to school personnel. In addition, the National Center for Educational Statistics has a host of demographic information available by school district and the Michigan Education Assessment Program scores are available for most school districts.[1] The fact that these data are available for the vast majority of Michigan's 552 school districts[2] allowed me to run robust multiple regression analyses and thereby avoid some of the small sample issues that plagued earlier survey-based studies.

Estimating School Building Capital

This paper estimates the capital assets for buildings in each school district in Michigan based on the financial reports covering the 2004-05 fiscal year. Of Michigan's 552 public school districts[3], 550 submitted figures for building capital and related depreciation in their financial reports. The two districts without building capital figures together contained only 92 students, giving a coverage rate of over 99 percent. Building

[1] Due to privacy concerns, MEAP scores for school districts with fewer than 10 exams were redacted.
[2] All of the regressions in this study were based on over 500 observations.
[3] Charter schools were not included in this analysis.

capital and depreciation are based on historic cost; they are not adjusted for inflation in the financial reports. For a detailed exposition on the capital asset calculation and more background on the Government Accounting Standards Board, see Arsen and Davis (2006). What follows is a summary of the method they used to calculate school building capital and depreciation.

Because the school districts' financial reports are based on historic expenditure, capital assets must be adjusted for inflation. This calculation is complicated by the fact that school districts' expenditures are spread across multiple years. The method used in this paper makes the simplifying assumption that all building expenditures occurred at a single point in the past. To place this amalgamated expenditure on a time line, we consulted accountants who had helped prepare the financial reports. They said that they typically depreciated school buildings using straight-line depreciation over 50 years down to a 20 percent residual value. Knowing this, we could then use depreciation as a percentage of historic expenditure to place the capital expenditure at some point on the 50-year timeline. The larger the ratio of depreciation to historic expenditure, the older the average vintage of the district's capital stock and capital expenditure and hence, the larger the necessary adjustment for inflation.

I calculate this 'capital vintage' factor, t, for district i as follows:

$$t = 2005 - \left[\left(\frac{50}{0.8} \right) \times \left(\frac{depreciation_i}{depreciation_i + capital_i} \right) \right] \quad (1.1)$$

Figure 1.1 shows a histogram of the average capital vintages for the 550 Michigan school districts used in this study.

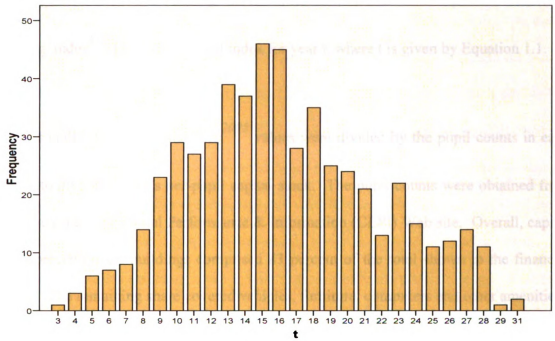

Figure 1.1: Frequency Distribution for Capital Vintage

Once I determined the vintage of each district's building capital, I used the New Education Buildings price index from the U.S Department of Commerce[4] to adjust nominal capital stock for inflation. Given t from Equation (1.1), the value of district i's capital stock in 2005 dollars is given by:

$$CapitalStock_i^{2005} = capital_i^t \times \left(\frac{bldg\_index^{2005}}{bldg\_index^t} \right) \qquad (1.2)$$

[4] Table 5.8.4A contains the education building cost indices for 1929-96 and Table 5.8.4B for 1997-2005.

Where:

$capital_i^t$ = The building capital shown in the district's 2005 GASB filing

$bldg\_index^{2005}$ = The building cost index for 2005

$bldg\_index^t$ = The building cost index for year t, where t is given by Equation 1.1.

Finally, these $CapitalStock_i^{2005}$ values were divided by the pupil counts in each district to give a district's per-pupil capital stock. The pupil counts were obtained from the Center for Educational Performance & Information (CEPI) Web site. Overall, capital and depreciation for buildings comprised 83 percent of the total shown in the financial reports. The remaining share covered vehicles, furniture, computers and other amenities.

Other Variables

I used data from the 2000 U.S. Census available through the National Center for Education Statistics Web site (NCES, 2008) to control for family characteristics of each school district. Development economists have shown a strong relationship between the education of mothers and various quality of life outcomes of their children (Schultz, 1981; Heckman and Hotz, 1986; Schultz, 1988; Barrera, 1990; Thomas et al., 1990; Thomas et al., 1991; Colclough, 1993). For this reason, I included the percentage of women over 25 in the school district's census population with a high school education or more in the regression equation. In addition, the percentage of households with related children under 18 was used to proxy family size. A negative coefficient on family size in an education production function regression would support Gary Becker's (1981) notion

of a tradeoff between the quantity and quality of children. Presumably, larger families would have fewer resources to devote to each child, resulting in lower student outcomes.

In addition to the characteristics of families in the community, I collected data on characteristics of pupils in the school districts from the CEPI Web site. The model controls for the percentage of students who are Black, Hispanic, and eligible for free or reduced-price lunch (FRL) in each district. The FRL percentage is the most widely available measure of poverty for school districts. The single record student database (SRSD) contains detailed attendance statistics for each student in Michigan and by summing these values up to the school district level, I was able to incorporate a district-wide attendance variable in the analysis, which served as a proxy for student effort. The SRSD also contains enrollment in Limited English Proficiency (LEP) programs and the number of students with an Individual Education Plan (IEP), which I summed to the school district level.

Finally, financial data were obtained from Bulletin 1014, produced by the Michigan Department of Education and available through the CEPI Web site. The main input into the education production function modeled in this paper is the natural logarithm of the per-pupil current operating expenditure (COE). The model also controls for the district's pupil-teacher ratio and the ratio of instructional expenditure to COE.

Outcomes

The outcomes of the model are the test scores on the Michigan Educational Assessment Program (MEAP) exams that were given to 4^{th} and 8^{th} grade students during the winter of 2005. The MEAP scores that are publicly available show the percentage of

students in each of four categories: Apprentice, Basic, Met Standards, and Exceeded Standards. This study added the latter two categories to obtain the percentages of passing students. The MEAP results are available through the Michigan Department of Education Web site (MDE, 2008).

Different subject tests are administered in different grades. Due to the focus on mathematics and reading in the calculation of adequate yearly progress under the No Child Left Behind Act of 2001, this study used only mathematics and reading scores as the dependent variables. Table 1.1 shows the tests that were administered in the winter of 2005 and Table 1.2 shows the pupil-weighted statewide summary statistics for the percentage of students who passed the MEAP.

Table 1.1: MEAP Examinations Used in This Study

Grade 4	Grade 8
Mathematics Reading	Mathematics

Table 1.2: Summary Statistics for MEAP Scores

	Grade 4 Mathematics	Grade 4 Reading	Grade 8 Mathematics
Mean	73.4 %	83.2 %	62.9 %
Standard Deviation	13.3 %	9.4 %	16.5 %
Minimum	20 %	50 %	12.5 %
Maximum	100 %	100 %	100 %

Ordinary Least Squares Regression Models

This study uses four OLS regression models: two models investigate the correlation between school building capital and student performance; two models incorporate an education production function to assess the statistical significance of the correlation between school building capital and student performance.

Basic Correlation Model:

$$MEAP = \beta_0 + \beta_1 * \ln(Capital/Pupil) + \varepsilon \quad (1.3)$$

Correlation Model with SES:

$$MEAP = \beta_0 + \beta_1 * \ln(Capital/Pupil) + \beta_2 *(\%\ FRL) + \varepsilon \quad (1.4)$$

Education Production Function Model:

$$MEAP = \beta_0 + \beta_1 *\ln(Current\ Exp./Pupil) + \beta_2 * \ln(Capital/Pupil) + \beta_3 *(Instruction/Total\ Exp) + \beta_4 *(Pupil/Teacher\ Ratio) + \beta_5 *(\%\ Black) + \beta_6 *(\%\ Hispanic) + \beta_7 *(\%\ FRL) + B_8 *(\%\ Females\ w/HS\ Educ\ ) + \beta_9 *(\%\ Families\ w/Kids<18) + \beta_{10} *\ Rural\_Dummy + \varepsilon \quad (1.5)$$

Education Production Function Model Accounting for Special Education:

$$MEAP = \beta_0 + \beta_1 *\ln(Current\ Exp./Pupil) + \beta_2 * \ln(Capital/Pupil) + \beta_3 *(Instruction/Total\ Exp) + \beta_4 *(Pupil/Teacher\ Ratio) + \beta_5 *(\%\ Black) + \beta_6 *(\%\ Hispanic) + \beta_7 *(\%\ FRL) + B_8 *(\%\ Females\ w/HS\ Educ\ ) + \beta_9 *(\%\ Families\ w/Kids<18) + \beta_{10} *\ Rural\_Dummy\ + \beta_{11} *(\%\ w/IEP) + \beta_{12} *(Attendance)\ + \varepsilon \quad (1.6)$$

Where

ln(Current Exp./Pupil) is the natural logarithm of the district-wide per-pupil current operating expenditure;

Instruction/Total Exp shows instructional expenditures as a percentage of current operating expenditure;

Pupil/Teacher Ratio is the district-wide pupil-teacher ratio;

% Black is the percentage of pupils in the district who are Black;

% Hispanic is the percentage of pupils in the district who are Hispanic;

% FRL is the percentage of pupils in the district who are eligible for free or reduced-price lunch;

% Females w/HS Educ is the percentage of women in the school district over age 25 with a high school education or more;

% Families w/Kids<18 is the percentage of households in the district that have related children under 18 years old;

ln(Capital/Pupil) is the natural logarithm of the estimate of the per-pupil school building capital stock;

Rural_Dummy is an indicator of rural school districts;

% w/IEP is the ratio of special education students to total enrollment;

Attendance is the district-wide average attendance.

I used the natural logarithms of current operating expenditure and capital to reflect diminishing marginal returns to these inputs. The logarithmic transformation gives proportionally less weight to large values. Intuitively, this transformation is consistent with the notion that, for poor school districts, an additional dollar per pupil

spent on either operating expenditure or capital will have a much larger impact that it would for a wealthy district.

Results

The dependent variables are district-wide percentages of students who passed the MEAP subject exams. The tables that follow show the estimated coefficients, below which are the t-statistics for each estimated coefficient in parentheses.

The basic correlation model in Table 1.3 simply seeks a statistical correlation between facilities and student performance. In both grades, the estimated coefficient on the logarithm of per-pupil capital stock was positive and statistically significant. Not surprisingly, these parsimonious models explain only a small fraction of the variation in student test scores as indicated by the R^2 statistics.

Table 1.5 incorporates the percentage of students in the district eligible for free or reduced-price lunch. The inclusion of the SES variable, while highly significant itself, renders the log of the capital stock variable much less significant. This is what you

Table 1.3: Basic Correlation Model (Equation 1.3)

Dependent variables→ ↓Independent variables	G4-Math	G4-Reading	G8-Math
constant	14.53	49.31	1.69
	(1.33)	(6.01)	(0.13)
ln(capital_ppupil)	6.12***	3.53***	6.36***
	(5.49)	(4.23)	(4.92)
n	518	518	527
R^2	0.055	0.033	0.044

* p<0.10 ** p<0.05 ***p<0.01 (t-statistics in parentheses)

would expect if richer districts build better buildings and richer families have kids who do better in school. It is worth noting that this regression is similar to the one run by Picus et al. (2005), which showed no significant correlation between facility quality and student performance in their study (see Table 1.4). This model does explain significantly

Table 1.4: Results from Picus et al.

Dependent variable→ ↓Independent variables	WyCAS
constant	237.61
	(102.5)
Condition Score	0.0
	(0.03)
FRL	-12.99***
	(-7.93)
n	162
R^2	0.28

* p<0.10 ** p<0.05 ***p<0.01 (t-statistics in parentheses). Source: Picus et al. (2005).

more of the variation in student test scores than the basic model. The regression equations for the elementary students have lower R^2 statistics than those for the middle school students, yet they also show statistically significant positive correlations between

Table 1.5: Correlation Model with SES (Equation 1.4)

Dependent variables→ ↓Independent variables	G4-Math	G4-Reading	G8-Math
constant	54.11	80.75	71.38
	(5.21)	(10.90)	(6.80)
ln(capital_ppupil)	3.13***	1.30*	1.02
	(3.03)	(1.77)	(0.97)
FRL	-28.97***	-27.15***	-47.85***
	(-10.73)	(-14.08)	(-17.09)
n	517	517	523
R^2	0.218	0.300	0.374

* p<0.10 ** p<0.05 ***p<0.01 (t-statistics in parentheses)

building capital and student performance. The regressions for the middle school students explain more of the variation in test scores, yet are ambiguous regarding the effect of capital on performance. In all models, both the magnitude and the statistical significance of the negative coefficients on FRL increase with the grade level, which suggests a cumulative adverse effect of poverty on student achievement.

I turn now to analyze a number of education production function models associated with Equations 1.5 and 1.6 that control for a wider set of student, community,

Table 1.6: Education Production Function Model (Equation 1.5)

Dependent variables→ ↓Independent variables	G4-Math	G4-Reading	G8-Math
constant	52.54	87.68	111.83
	(0.91)	(2.15)	(2.13)
ln(Current Exp./Pupil)	-3.88	-4.71	-11.01**
	(-0.70)	(-1.19)	(-2.19)
ln(Capital/Pupil)	3.32***	1.98***	1.92*
	(3.06)	(2.57)	(1.87)
Instruction/Total Exp.	4.56	15.82	12.47
	(0.31)	(1.51)	(0.89)
Pupil/Teacher Ratio	-0.05	0.08	-0.18
	(-0.24)	(0.54)	(-0.89)
% Black	-12.35***	-8.32***	-21.45***
	(-2.78)	(-2.65)	(-5.13)
% Hispanic	0.22	0.65	22.61***
	(0.03)	(0.10)	(2.69)
% FRL	-14.42***	-16.87***	-27.53***
	(-2.85)	(-4.70)	(-5.77)
% Females w/HS Educ	38.09***	22.80**	52.15***
	(2.96)	(2.49)	(4.25)
% Families w/Kids<18	-10.18	-13.75**	-15.34
	(-1.03)	(-1.96)	(-1.62)
Rural_Dummy	-0.24*	-1.25	0.39
	(-.19)	(-1.42)	(0.33)
n	511	511	517
R^2	.266	.349	.504

* p<0.10 ** p<0.05 ***p<0.01 (t-statistics in parentheses)

and current expenditure variables. Table 1.6 shows that the percentages of Black students and students eligible for FRL have a strong negative effect on test scores. The number of households with related children under 18—a proxy for household size—is significant in two of three cases and negative in all cases. The percentage of females with a high school education has a positive and statistically significant effect in all cases.

The variable of interest, the log of the per-pupil capital stock, has a positive effect in all three cases, two of which are highly significant, and one of which is moderately significant. The negative coefficient on current operating expenditures tells us that high spending districts have lower test scores. This is plausible if the higher costs are being driven by students with special needs.

Table 1.7 incorporates the ratio of the number of special education students to total enrollment in order to account for both the higher costs associated with special education students and their lower test scores. While the estimated coefficients on the log of average COE are still negative in two of the three cases, the magnitude of the negative coefficients is smaller, as is the statistical significance. The estimated coefficient on the ratio of special education students is significant and negative, which is consistent with special education students having lower test scores. The signs and significance of the other variables in the model is similar to Table 1.5.

Finally, Equation 1.7 includes prior achievement on the 8^{th} grade MEAP exam in mathematics. Up to this point, the MEAP examination results were from the 2005 academic year. The 2001 MEAP results include scores for the 4^{th} grade cohort in mathematics, which would become the 8^{th} grade cohort in the 2005 data. While there

was undoubtedly some movement across districts within the cohort over four years, these data are district averages and should therefore be fairly robust to minor shifts in the student population. The sensitivity analysis below investigates this assumption further.

Table 1.7: Education Production Function Model (Equation 1.6)

Dependent variables→ ↓Independent variables	G4-Math	G4-Reading	G8-Math
constant	-12.27	57.82	41.17
	(-0.20)	(1.34)	(0.74)
ln(Current Exp./Pupil)	0.23	-2.90	-7.46
	(0.04)	(-0.72)	(-1.48)
ln(Capital/Pupil)	3.92***	2.24***	2.52**
	(3.63)	(2.90)	(2.45)
Instruction/Total Exp.	6.62	16.73	13.73
	(0.45)	(1.60)	(0.99)
Pupil/Teacher Ratio	0.24	0.21	0.08
	(0.45)	(1.34)	(0.36)
% Black	-14.47***	-9.24***	-23.20***
	(-3.27)	(-2.91)	(-5.54)
% Hispanic	-1.93	-0.32	20.44**
	(-0.22)	(-0.05)	(2.46)
% FRL	-8.52	-14.23***	-21.95***
	(-1.64)	(-3.82)	(-4.45)
% Females w/HS Educ	40.28***	23.76***	54.24***
	(3.17)	(2.61)	(4.47)
% Families w/Kids<18	-10.14	-13.76**	-15.39*
	(-1.04)	(-1.97)	(-1.65)
Rural_Dummy	-0.50	-1.37	0.22
	(-0.41)	(-1.55)	(0.19)
% w/IEP	-62.07***	-27.31**	-49.77***
	(-3.85)	(-2.36)	(-3.27)
Attendance	20.55	10.37	31.73**
	(1.31)	(0.92)	(2.14)
n	511	511	517
R^2	0.289	0.358	0.518

* p<0.10 ** p<0.05 ***p<0.01 (t-statistics in parentheses)

Education Production Function Model Accounting for Special Education and Prior Achievement:

$$\begin{aligned} MEAP = {} & \beta_0 + \beta_1 * \ln(\text{Current Exp./Pupil}) + \beta_2 * \ln(\text{Capital/Pupil}) + \\ & \beta_3 * (\text{Instruction/Total Exp}) + \beta_4 * (\text{Pupil/Teacher Ratio}) + \beta_5 * (\%\ \text{Black}) + \\ & \beta_6 * (\%\ \text{Hispanic}) + \beta_7 * (\%\ \text{FRL}) + B_8 * (\%\ \text{Females w/HS Educ}) + \\ & \beta_9 * (\%\ \text{Families w/Kids<18}) + \beta_{10} * \text{Rural\_Dummy} + \beta_{11} * (\%\ \text{w/IEP}) + \\ & \beta_{12} * (\text{Attendance}) + \beta_{13} * (\text{G8 MEAP Lag4}) + \varepsilon \end{aligned} \tag{1.7}$$

Table 1.8 shows the results for the 8th grade MEAP mathematics scores controlling for the four-year lagged mathematics scores. The lagged mathematics scores are a significant positive predictor of current mathematics scores, as expected. Moreover, by including the lagged mathematics scores, we see that the coefficient on the log of current operating expenditure is now positive, though not statistically different from zero. The coefficients on the other variables are similar in sign and statistical significance to Table 1.7. Table 1.8 shows a well-specified education production function in which the quality of school facilities has a positive impact on student achievement.

The focus of this study has been on the statistical significance and the sign of the estimated coefficients in the various regression models. At this point, the analysis turns to the practical significance of the estimated impact of school capital on student performance in Equation 1.7. In Table 1.8, the dependent variable is the percentage of 8th grade students who pass the MEAP exam in each school district. The independent variable of interest is the natural logarithm of per-pupil school building capital. Suppose a school district were to increase its capital stock by 10 percent per pupil. The predicted

result would be an increase of 0.24 percent in the number of 8th grade students who pass the MEAP exam in mathematics. At first blush this may seem like a small return, but bear in mind that the students in other grades would also benefit from the improvements.

The independent variables in Table 1.8 have a variety of units making it difficult

Table 1.8: Education Production Function Model with Prior Achievement (Equation 1.7)

Dependent variable→ ↓Independent variables	G8-Math
constant	-33.46
	(-0.65)
ln(Current Exp./Pupil)	0.96
	(0.20)
ln(Capital/Pupil)	2.50***
	(2.67)
Instruction/Total Exp.	17.34
	(1.37)
Pupil/Teacher Ratio	-0.08
	(-0.42)
% Black	-19.81***
	(-5.08)
% Hispanic	17.11**
	(2.26)
% FRL	-22.52***
	(-4.95)
% Females w/HS Educ	38.95***
	(3.51)
% Families w/Kids<18	-12.62
	(-1.49)
Rural_Dummy	0.89
	(0.83)
% w/IEP	-48.20***
	(-3.43)
Attendance	25.72*
	(1.91)
Grade 8 Math Lag(4)	0.23***
	(5.96)
n	515
R^2	0.587

* p<0.10 ** p<0.05 ***p<0.01 (t-statistics in parentheses)

to assess the relative importance of one with respect to the others. In order to compare the practical significance of the estimated coefficients, Table 1.9 shows the standardized coefficients from the regression equation estimated in Table 1.8 by decreasing absolute value. The standardized coefficients show the estimated effect on 8th grade test scores of a one standard deviation change in the independent variables. Demographic variables and the prior test scores have the largest impact on student performance. What is interesting is that of the remaining variables that are under the control of school administrators—current operating expenditure, the pupil-teacher ratio, the share of expenditure devoted to instruction, and the capital stock—the per-pupil capital stock has the largest impact. In the case of class size reductions, a one standard deviation increase in the logarithm of the per-pupil capital stock has over five times the impact of a one standard deviation reduction in the pupil-teacher ratio.

Table 1.9: Ranking of the Standardized Coefficients for Equation 1.7

Dependent variable→ ↓Independent variables	G8-Math
% FRL	-0.290***
% Black	-0.239***
Grade 8 Math Lag(4)	0.206***
% Females w/HS Educ	0.159***
% w/IEP	-0.113***
ln(Capital/Pupil)	**0.085*** **
% Hispanic	0.073**
Attendance	0.057*
Instruction/Total Exp.	0.050
% Families w/Kids<18	-0.049
Rural_Dummy	0.032
Pupil/Teacher Ratio	-0.016
ln(Current Exp./Pupil)	0.009
n	515
R^2	0.587

* p<0.10 ** p<0.05 ***p<0.01

Sensitivity Analysis

The presence of an omitted confounding variable would be a significant threat to the validity of the inference that school building capital impacts student performance. Ken Frank has derived a method to calculate the minimum threshold necessary for an omitted confounding variable to invalidate the statistical significance of a variable of interest in an ordinary least squares regression model (see Frank, 2000; Frank et al., 2008). Frank offers an improvement over previous applications of sensitivity analysis by incorporating both the correlation between the potential confounding variable and the variable of interest as well as the correlation between the confounding variable and the outcome. In Equation 1.7, an omitted variable that is correlated with both student performance and per-pupil building capital could potentially invalidate the inference that school building capital is positively correlated with student performance. Frank's calculation allows a researcher to calculate the minimum impact of an unmeasured confounding variable that would be required to invalidate the t-test on the coefficient of per-pupil building capital in an ordinary linear regression model.

Robustness of the Statistical Significance of School Building Capital

Figure 1.2 shows a situation where some element of community preferences for education is an omitted confounding variable in the model estimated by Equation 1.7. In the absence of a confounding variable, the model assumes a fairly direct impact of capital on performance, as shown by the top arrow in Figure 1.2. The presence of a confounding

variable could invalidate the putative impact of capital on student performance, which is shown by the W-shaped interaction in Figure 1.2 and the blip in the top arrow.

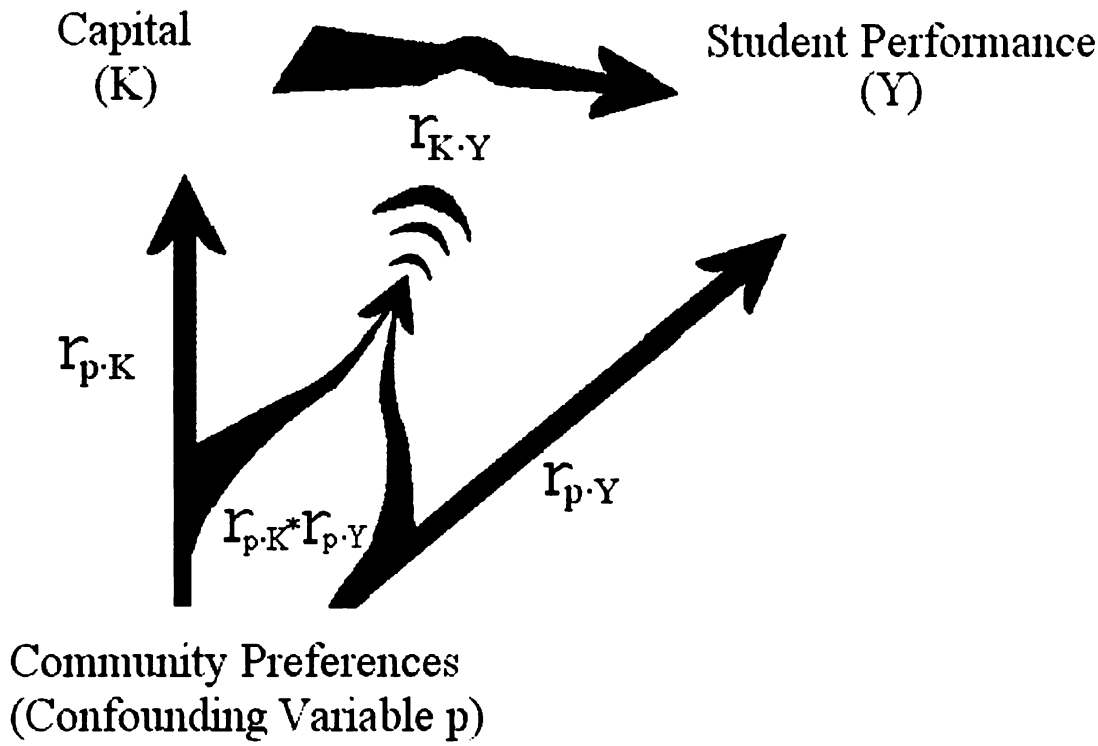

Figure 1.2: The Potential Impact of Community Preferences On the Relationship Between School Capital and Student Performance [5]

The basic linear model is given by:

$$y_i = \beta_0 + \beta_1 K_i + \varepsilon_i \qquad (1.8a)$$

$$y_i = \beta_0 + \beta_1 K_i + \beta_2 p_i + \varepsilon_i \,. \qquad (1.8b)$$

[5] Figure 2 is a modification of Figure 4 from Frank (2000).

In Equations 1.8a and 1.8b, y_i refers to student performance, K_i is the school building capital stock, and p_i is an omitted community preference variable, or potential confounding variable. The concern is that including p_i in Equation 1.8b will render the coefficient on capital no longer statistically different from zero. Frank (2000) asks the question: Given $\hat{\beta}_1$ is statistically significant in Equation 1.8a, how large must the correlation between p_i and y_i and between p_i and K_i be such that $\hat{\beta}_1$ is not statistically significant in Equation 1.8b? He answers the question by defining the impact of a confounding variable on a regression coefficient as the product of the individual correlations, $r_{p \bullet K}$ and $r_{p \bullet y}$, where $r_{p \bullet K}$ is the correlation between the confounding variable and the predictor of interest (capital) and $r_{p \bullet y}$ is the correlation between the confounding variable and the outcome (8^{th} grade mathematics scores). The correlation between school building capital and student performance *controlling for the confounding variable* is given by:

$$r_{K \bullet y|p} = \frac{r_{K \bullet y} - r_{p \bullet K} \times r_{p \bullet y}}{\sqrt{1 - r_{p \bullet K}^2}\sqrt{1 - r_{p \bullet y}^2}} \tag{1.9}$$

Due to the presence of the individual correlations in the denominator, the only way to reduce the correlation between school building capital and student performance,

controlling for a confounding variable, is to increase the *product* of the correlations in the numerator, which Frank calls impact.

The correlation between school building capital and student performance, $r_{K \bullet y}$, can be calculated from the observed t-statistic on the regression coefficient on the log of per-pupil building capital from the regression equation:

$$r_{K \bullet y} = \frac{t_{\hat{\beta}_1}}{\sqrt{t^2_{\hat{\beta}_1} + (n + q - 1)}} \tag{1.10}$$

Following the assumptions in Frank et al. (2008), let $r^{\#}$ be the threshold level of statistical significance required to invalidate the inference that school building capital impacts student performance. In that case:

$$r^{\#} = \frac{t_{critical}}{\sqrt{t^2_{critical} + n - 3}}, \tag{1.11}$$

where $t_{critical}$ is the critical value of a t-distribution with the desired level of statistical significance (e.g., 1.96 for a 95% significance level). The correlation between the capital stock and student performance, $r_{K \bullet y}$, is invalid if $r_{K \bullet y|p} < r^{\#}$. Moreover, the maximization of Equation 1.9 occurs where $r_{p \bullet K} = r_{p \bullet y}$. Setting $r_{p \bullet K} = r_{p \bullet y}$ and formally defining *impact* = $r_{p \bullet K} * r_{p \bullet y}$, then Equation 1.9 becomes (Frank, 2000)

$$r_{K\bullet y|p} = \frac{r_{K\bullet y} - impact}{1 - impact} \quad . \tag{1.12}$$

Set $r_{K\bullet y|p} = r^{\#}$ (where $r^{\#}$ is defined in Equation 1.11) and solve for *impact* to find the impact threshold for a confounding variable, ITCV (Frank et al., 2008).

$$ITCV = \frac{\left(r_{K\bullet y} - r^{\#}\right)}{\left(1 - \left|r^{\#}\right|\right)} \quad . \tag{1.13}$$

The Multivariate Model

Equation 1.7 is a multivariate regression model, not the simple model given in Equations 8a and 8b. The form of the multivariate model with a single confounding variable is given by:

$$y_i = \beta_0 + \beta_1 K_i + \beta_2 Z_{1i} + \ldots + \beta_{n+1} Z_{ni} + \varepsilon_i \tag{1.14a}$$

$$y_i = \beta_0 + \beta_1 K_i + \beta_2 Z_{1i} + \ldots + \beta_{n+1} Z_{ni} + \beta_{n+2} p_i + \varepsilon_i \quad . \tag{1.14b}$$

In this model, y_i, K_i, and p_i are defined as in (8a) and (8b). The set of covariates, Z_{1i} ... Z_{ni}, are the other variables in the full production function model. In the multivariate case, impact = $r_{K\bullet p|\vec{z}} \times r_{y\bullet p|\vec{z}}$. If we assume that the covariates are uncorrelated with the confounding variable in order to maximize the impact of the confounding variable (i.e., $r_{p\bullet\vec{z}} = 0$), then Frank (2000) shows that the impact threshold for

the multivariate case is simply a multiple of the ITCV in the single-variable case, adjusting $r^{\#}$ for the degrees of freedom.

$$ITCV = \sqrt{\left(1 - r^2_{K \bullet \vec{z}}\right)\left(1 - r^2_{y \bullet \vec{z}}\right)}\left(\frac{r_{K \bullet y|\vec{z}} - r^*}{1 - r^*}\right) \tag{1.15}$$

where

$$r^* = \frac{t_{critical}}{\sqrt{t^2_{critical} + n - q - 3}} \tag{1.16}$$

and q is the number of covariates in $\vec{z}$.

Calculating the Impact Threshold for a Confounding Variable

Table 1.10 shows the calculations required to obtain the impact threshold of a confounding variable for the education production function modeled in Equation 1.7. Note that $r^2_{K \bullet \vec{z}}$ is the R^2 statistic from a regression of *ln(Capital/Pupil)* on the other covariates in $\vec{z}$ and $r^2_{y \bullet \vec{z}}$ is the R^2 statistic from a regression of *G8_Math* on the covariates in $\vec{z}$.

The impact threshold looks relatively small by social science standards but bear in mind that the impact is the product of two partial correlations: the correlation with the capital stock and the correlation with eighth grade mathematics scores. Table 1.11 shows

Table 1.10: Calculating the ITCV

Single-variable Case

$t_{critical}$	n	$r^{\#}$ (11)	t_{obs}	$r_{K \bullet y \mid p}$ (12)	ITCV (13)
1.96	515	0.086	2.67	0.012	0.034

Multivariate Case

$t_{critical}$	q	r^{*} (16)	$r^2_{K \bullet \vec{z}}$	$r^2_{y \bullet \vec{z}}$	ITCV (15)
1.96	12	0.087	0.187	0.581	0.019

that any omitted confounding variable would have to have a 49 percent larger impact than mother's education, a 71 percent larger impact than the percentage of Black students in the district, and a 300 percent larger impact than the percentage of Hispanic students in the district. While the percentage of students eligible for free or reduced-price lunch and the percentage enrolled in special education exceed the ITCV, bear in mind that any omitted confounding variable would have to exceed the ITCV with those two variables in the model.

The sensitivity analysis employing the ITCV included a four-year lagged mathematics score. Depending on the degree of inter-district mobility, this lagged test score may contain measurement error if the students transferring into and out of the

district had appreciably different test scores. Frank (2000) discusses the effect of measurement error of a confounding variable. We are interested in the impact of measurement error of the pretest due to student mobility. Frank defines α(cv) as the reliability of the confounding variable. Similarly, I will define α(pretest) as the reliability of the pretest. The closer the reliability of the pretest is to one, the more sensitive the inference regarding the impact of school capital on 8th grade mathematics scores is to measurement error in the pretest (Frank, 2000). Equation 20 in Frank (2000) shows that without covariates in the model, the reliability is simply Impact/ITCV, which is the reciprocal of the fifth column in Table 1.11. In the case of the pretest, Table 1.11 shows that the reliability of the pretest is in fact quite high, 0.99, implying that the correlation between school capital and student performance is quite sensitive to measurement error caused by inter-district migration.

Table 1.11: The Impact of the Significant Variables in the Production Function Model Controlling for Prior Achievement

Variable	Partial Corr w/Capital	Partial Corr w/G8 Math	Impact	ITCV/Impact
% Black	0.051	-0.218	-0.011	1.71
% Hispanic	0.044	0.108	0.005	4.00
% FRL	-0.156	-0.242	0.038	0.50
% Females w/HS Educ	0.078	0.163	0.013	1.49
% w/IEP	0.156	-0.135	-0.021	0.90
Grade 8 Math Lag(4)	0.071	0.265	0.019	1.01

Conclusions

This study shows a positive impact of per pupil building capital on student performance on the MEAP exam results in Michigan for the 2004-05 school year. The method of calculating the capital stock uses the school district as the unit of analysis and

relies on the GASB recommendations for financial reporting. School districts are required to submit their financial reports, so this method can be applied across states and the capital asset calculations will be comparable. By using criterion-based test scores, the percentage of students that meet any given state's standards are also comparable across states.

Race, poverty, female education levels in the community and family size also affect student performance, consistent with prevailing theory. The impact of per-pupil expenditure is complicated by the fact that students with added needs are both more expensive to accommodate and less likely to perform well on standardize tests. Including the lagged mathematics scores produced a regression coefficient on per-pupil expenditure that, while not statistically significant, was intuitively appealing.

Other studies have used more technical evaluations of school building quality. Picus (2005) had a very sophisticated building quality measure, but it was specific to Wyoming. In the absence of a nationwide building evaluation formula, the GASB-based financial reports offer the best universal metric available to assess school building quality. That fact that the financial reports show dollar amounts for capital assets enables researchers to make direct comparisons both within and across states. Moreover, these figures can be easily adjusted for variations in building costs across the country.

The statistical impact of school building capital on student performance in modest by social science standards. Nevertheless, the education production function model presented here is far more sophisticated with regard to community characteristics, student body composition, and financial inputs into the education process than previous studies of the link between facilities and student performance. The statistical significance of the

link between school building capital and average student test scores is open to challenge given the existence of an omitted confounding variable in the education production function. But the burden of proof rests with the skeptic to propose an omitted variable that has a larger impact on the relationship between school building capital and student performance than race and mother's education while controlling for all of the covariates in the education production function.

Much like mathematicians first prove the existence of a solution before setting out to find it, this study shows a positive impact of per pupil building capital on student performance. The next step is to estimate the cost of shoring up the nation's school building capital stock in order to achieve performance targets. Facilities are only one of many inputs into the education process, but they are increasingly becoming an integral part of many education adequacy cases. Armed with a universal metric to calculate school building capital, policymakers can embark on their quest for education adequacy confident that facilities matter.

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CHAPTER 2

SCHOOL EMPLOYEE HEALTHCARE: DOES A STATEWIDE HEALTHCARE PLAN REDUCE COSTS?

Introduction

Healthcare costs for active and retired school employees are consuming a growing share of education budgets nationwide. There are a variety of plan designs for healthcare benefits, ranging from a statewide health plan that covers all state employees, as in Delaware, to states like Michigan, which has left health insurance funding to individual school districts. Faced with rising healthcare costs, some policymakers are considering whether a statewide healthcare plan for school employees would reduce costs.

It is widely assumed that school employees accept lower current wages in exchange for job security and generous employee benefits (Long & Marquis, 1999; Maxwell et al., 2004; Hurley et al., 2006). There is growing concern over the fact that the share of education spending dedicated to employee benefits is growing far faster than employee salaries and is largely beyond the control of school district administrators. The Kaiser Family Foundation (KFF) and the Health Research and Educational Trust (HRET) conducted an annual national survey of private and public employers of three or more workers. Figure 1 shows, nationwide, increases in overall inflation and workers' earnings have been below four percent annually since 1999 while health insurance premiums have grown at over eight percent per year since 2000, peaking at 14 percent annually in 2003 (Kaiser Family Foundation, 2006).

Using nationwide data for the years 1996-2005, this study will first show the growth rates for salary, benefits and expenditures across various job functions. In

addition, it will look at the share of compensation that is devoted to employee benefits during the same period. Second, it will use a nationwide dataset consisting of financial, community, and demographic data for all traditional public school districts[6] between the years 2001 and 2005 to compare expenditure for employee benefits in school districts that belong to a statewide health plan to those that do not. Moreover, it will examine whether there is an additional state effect of having a strong incentive to join the plan. Finally, this study will provide an analysis of two states with statewide health plans that provide explicit healthcare data through their respective departments of education in order to compare districts within those states that belong to the statewide health plan to non-participating districts.

Review of the Literature

The cost of health insurance is rising rapidly in the United States because of the unique nature of the market for healthcare. Kenneth Arrow (1963), the Nobel Prize-winning economist, gave an astute analysis of the market for medical care almost a decade before the rapid increases in costs became a cause for concern. To Arrow, the root cause of the market imperfections in the health insurance market is uncertainty and the fundamental problem of healthcare economics is the imperfect market for risk bearing. Due to these market imperfections, it is impossible to draw up insurance policies that sufficiently distinguish among risks and as a result, incentives to avoid losses are weak. Without incentives to control losses, claims inevitably rise and as a result, we see health insurance premiums spiraling upward.

[6] This study will use school district and local education agency (LEA) interchangeably.

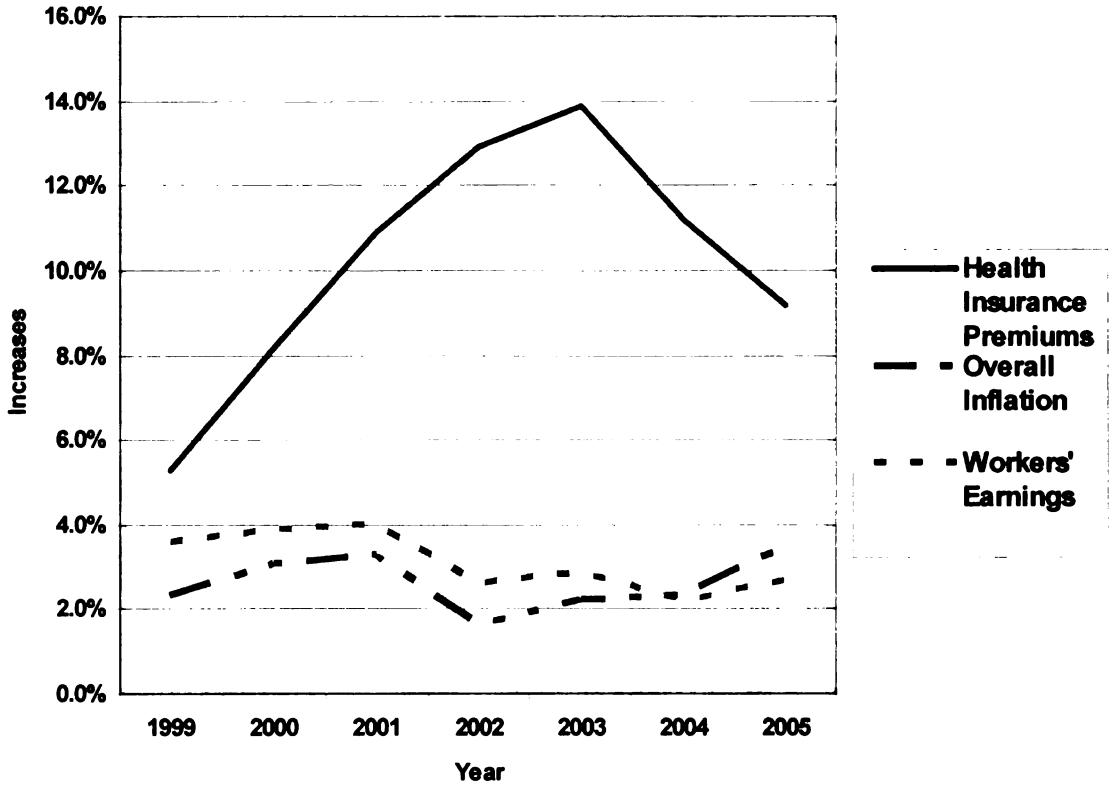

Figure 2.1: Increases in Employer Health Plan Premium Compared to Increases in Overall Inflation and Workers' Earnings, 1999-2005 (KFF, 2006)

Special Characteristics of the Healthcare Market

Arrow (1963) identified several special characteristics of the healthcare market. First, demand is irregular, unpredictable, and usually only provides satisfaction in the case of illness. Second, the customer cannot test the product before buying it, reinforcing the trust element of the relationship. Because of this, there are both explicit (licensure) and implicit (Hippocratic Oath) restrictions placed on doctors to assure quality. Third, there is a great deal of product uncertainty for the buyer, leading to a large asymmetry of information between buyer and seller and no meaningful way for them to communicate because of the buyer's ignorance. This asymmetry influences the relationship as buyer and seller must rely on convergent expectations. The end result is that the patient

delegates almost all responsibility to the physician. Fourth, supply is heavily regulated by restricting entry into medical schools. Arrow maintains that this is meant to reduce the uncertainty in the mind of patients regarding the quality of care. (Some critics suggest that it is meant to maintain the high incomes of doctors.) Finally, there is a great deal of price discrimination by income, with the indigent paying nothing while others pay a significant portion of the cost; yet there is virtually no price competition between providers.

Problems With Providing Health Insurance

As a result of the aforementioned market characteristics, Arrow identifies some problems with health insurance. First, there is the problem of moral hazard. David Dranove (2000) labeled the phenomenon "demand inducement" whereby physicians both tell patients what is wrong with them and then go on to fix it (or recommend someone who does). He cited a RAND study in the early 1970s, which demonstrated that widespread medical insurance increases the demand for medical care. Dranove concluded that "physicians induce demand" (p.32).

Second, there are a number of alternative methods of payment. Health Maintenance Organizations (HMOs) range from a staff model, which hires doctors and pays them an annual salary regardless of how many times they see a given patient to individual practice arrangements (IPAs), which allow doctors to maintain their normal practice, but expect a discount for services provided to plan members. Traditional fee-for-service arrangements reimburse providers for services rendered. Medicare and Medicaid have developed a Prospective Payment System (PPS), which used a

complicated formula to pay physicians prospectively based on a "reasonable and customary" charge for that community (Dranove, 2000).

Third, the fact that a third party—the insurer—pays the claims removes the incentive for either the patient or the physician to control costs. Fourth, the pooling of unequal risks results in the healthy subsidizing the sick. This opens the door to adverse selection, whereby the healthier enrollees move to low-cost plans leaving sicker people behind in the high-cost, high-benefit plans. Cutler and Reber (1998) documented the Harvard University health plan that offered an HMO and a traditional indemnity plan and made the employees pay the difference to buy up to the indemnity plan. Due to adverse selection and the resulting divergence in premium increases, the indemnity plan was discontinued after three years.

Fifth, insurance companies and managed care organizations have significant administrative costs. Sixth, health insurance is more valuable the greater the uncertainty in the risk being insured against, implying increasing returns to insurance. Seventh, since health insurance insures a person's well-being, economists say that there is an indivisibility inherent in the product. Taken together, these last three items lead to economies of scale in the health insurance industry. The result is that insurance companies and managed care organizations tend to be quite large, even apart from the need to spread risk. Finally, because healthcare in the United States is a market, it rations access to healthcare for a significant number of people, many of whom are left with no coverage.

Responses

In light of the numerous imperfections in the healthcare market, Arrow (1963) stated, "when the market fails to achieve an optimal state, society will, to some extent at least, recognize the gap, and nonmarket social institutions will arise attempting to bridge it" (p.947). By far the most significant attempts to mitigate the market imperfections associated with healthcare (in the U.S., but not other advanced countries) have come from employers who provide health insurance to their employees. In 1997, there were 167.5 million non-elderly Americans with private health insurance and 151.7 million of them (90.6%) belonged to employer-sponsored health plans (Kuttner, 1999). In an effort to control costs, employers and their health insurers incorporated deductibles, coinsurance, and co-payments in an effort to address the moral hazard effects of health insurance by making employees share the cost Another weapon that employers have used to control moral hazard, the third-payer problem, adverse selection and high administrative costs has been managed care[7] (Dranove, 2000).

Another non-market institution is the government, which assumes multiple roles in the healthcare arena. The government intervenes sporadically in the healthcare market to boost quality and improve access. Professional licensing addresses the former, and Medicare and Medicaid are examples of the latter. In addition to regulating the healthcare industry, the government is also an employer and hence a buyer of healthcare. Finally, legislators periodically look into making the federal government the single payer for healthcare covering everyone, not just the indigent and the elderly. The two most

[7] Managed care refers to the array of programs like HMOs and PPOs put in place in order to control patients' access to expensive care.

recent attempts at national healthcare were the Kennedy-Mills national health insurance plan in the early 1970s and the Clinton health plan in 1993 (Dranove, 2000).

Providing Healthcare in the Public Sector

Public sector employers as a group have been less aggressive in controlling healthcare costs than their private sector counterparts (Maxwell et al., 2004). In 2000, there were roughly 21 million government employees in the United States (Hurley, et al., 2006). The reason that public employers trail private employers in containing healthcare costs lies in the unique constraints public employers face. First, decisions are made in a highly political context. Second, there are statutes regarding due process, public input, and public accountability that constrain the content, timing, and process of benefit decisions. Third, the government workforce is heavily unionized, with union representatives playing legally proscribed roles in employee compensation decisions. Fourth, because government employees are often concentrated in single healthcare markets, they have the potential to affect the broader markets and as a result, they may alter their benefit decisions in ways that private employers do not. Two aspects of public employers that may actually help control costs are the possibility of various entities jointly purchasing benefits and increasing their market power, and the fact that public employees generally face fixed budgets set by elected officials who must take into account the impact on taxpayers (Watts et al., 2003). Finally, it should be noted that private employers are constrained in their ability to pass on the cost of rising healthcare cost by competition in their product markets, whereas public employers are constrained

by voter resistance to higher taxes or to squeezing out other areas of government expenditures.

More recently, revenue shortfalls in many jurisdictions have placed large fiscal constraints on public employers. The fact that public employers typically offer generous health benefits—the costs for which are growing far faster than general inflation—has further burdened public employers. Hurley and his associates (2006) summarized the results of a Kaiser Family Foundation survey that showed that public employees were offered HMOs at a higher rate, had lower co-pays for prescription drugs, and were offered retiree health benefits at higher rates than private sector employees. In addition, public employees earn less than private employees, restricting the ability of plan managers to push costs for health insurance onto employees by raising deductibles, for example.

Finally, just as FAS 106[8] increased the reporting requirements for retiree health benefits in the private sector, the Government Accounting Standards Board Statement 45, released in August of 2004, requires government entities to report the liability for health benefits promised to future and current retirees (GASB, 2004; Hurley et al., 2006). The effect of GASB 45 may be a downgrading of the bond ratings of some government entities, like school districts, which will increase their borrowing costs (Gentry et al., 2006). Some analysts fear that just as some private firms stopped offering coverage after FAS 106, some government units may scale back their retiree health plans (Kendall et al., 2004; Maxwell et al., 2004; Hurley et al., 2006).

[8] In 1993 the Financial Accounting Standards (FAS) Board passed FAS 106, which required employers to report annually on the liability represented by the promise to provide retiree health benefits to current and future retirees (GAO, 2001).

The Michigan Experience

Recently the benefits of school employees have attracted the attention of budget-cutting politicians and some states have gone so far as implementing various forms of statewide healthcare plans for active and/or retired school employees in order to control costs. To show how complicated the policy debate surrounding school employee healthcare can be, I turn now to a specific example.

Rising healthcare costs, rich employee benefits for school employees, and the constraints placed upon public employers are having a particularly hard impact in Michigan. In 1994, Michigan devolved the costs for the statewide teacher retirement system down to the school district level. Plan managers were able to keep the lid on contributions for a while by depleting the reserves built up under the former actuarial accrual method. When Michigan switched from accrual to cost-based (pay-as-you-go) accounting in 1996, the state was able to apply the built-up reserves to keep retiree pension and health insurance contributions below their actuarially required levels (Michigan Commission of Public Pension and Retiree Health Benefits, 2001; CRC, 2004; Coughlin & Zuckerman, 2005). Those reserves are now depleted and the actuarial liability has come home to roost. The actuarial valuation for the Michigan Public School Employee Retirement System shows over $15 billion in unfunded accrued liability for healthcare benefits (CRC, 2004). In addition, there are the costs for providing health insurance to *active* employees in Michigan public schools. Michigan's Proposal A eliminated districts' ability to raise local property tax rates for current operations. At the same time, districts have been hit with the double-whammy of rising healthcare costs for

active employees and the added burden of retiree benefits, which also include healthcare costs.

Michigan's budget crisis led to a freeze in the growth of the state's per-pupil foundation allowance from fiscal year 2003 through 2005.[9] The $175 increase in the foundation allowance for 2006 amounted to less than three percent for those school districts at the minimum and even less for Michigan's high revenue districts.[10] During that same period, Figure 1 clearly shows that there is no way the 2006 foundation increase could have kept pace with either health insurance premiums or workers' salaries. Because school districts cannot defer their health insurance premiums or their obligation to the state retirement plan, they were forced to either alter their health plans with higher deductibles and co-pay amounts, or cut other items in their budgets.

In response to calls by school districts for something to be done, the then Republican-controlled Michigan Legislative Council commissioned a report from the HayGroup, a management consulting firm, to examine the feasibility of moving Michigan school employees into a statewide health benefits plan in an effort to control costs (HayGroup, 2005). The HayGroup had recently conducted a similar study in Pennsylvania. The Michigan Education Special Services Association (MESSA), a third-party benefits administrator affiliated with the state's largest teachers union, the Michigan Education Association (MEA), responded by hiring their own consulting firm, Reden & Anders, Ltd. (R&A), and within two months of the HayGroup report's release, MESSA had a critique (Hoffman, 2005). The HayGroup proposal recommended a mandatory

[9] Increases in Michigan's foundation allowance are uniform across all districts. In 2006, 355 of Michigan's 553 traditional public school districts had a foundation allowance at the statewide minimum of $6,875. The remaining 198 "hold harmless" districts have a higher foundation allowance but receive the same annual increases.

[10] Based on data provided by Glenda Rader from the Michigan Department of Education.

statewide health insurance plan for school employees that augmented the administrative network already in place for retirees, the Michigan Public School Employee Retirement System (MPSERS). The R&A report criticized many of the assumptions used by the HayGroup and reevaluated the proposed plans with their own assumptions, eliminating virtually all of the savings projected in the HayGroup report. The debate ended in a flurry of actuarial assumptions and claims projections with nothing being done. Ultimately, the MEA lobbied hard against the pooling plan and the Democratic governor faced down the Republican-controlled legislature in the high-stakes state budget negotiation. In the end, the Republicans backed down. More recently, lawmakers in Michigan sponsored bills to limit the insurance and pension benefits of new teachers (Melot, 2007). The negotiations surrounding last year's state budget included reforms to the pension system and access to health insurance claims data. New teachers are required to make larger contributions into their pension plan and MESSA is now required to release health insurance claims experience to school districts who want to solicit bids from other health insurance carriers (Bell et al., 2007).

Empirical Strategy

This study intends to avoid the minutiae of administrative costs, stop-loss insurance premiums, pharmacy carve-out savings, insurer stabilization reserves, etc. One problem with reports like the HayGroup study noted above is their failure to address the general equilibrium effects of altering the plan designs. It is quite reasonable to expect that some school employees will leave the plan if benefit restrictions are imposed. What

follows is an analysis of the effects of switching to a statewide health insurance plan for school employees. The analysis will pursue the following two research questions:

1) To what extent have rising employee benefit costs reduced or crowded out other components of school district budgets (including salaries) at the state level?
2) Does the presence of a statewide healthcare plans for school employees result in a slower growth in employee benefit costs?

Benefits as a Growing Share of School District Expenditure

Figure 2.1 shows that health insurance premiums have been growing significantly faster than both employee wages and the general rate of inflation since 1999 for all types of employees across the country. There are three possible responses that can result from rapidly rising healthcare premiums. First, it is possible, for example, that healthcare premiums for a school district could be growing at eight percent per year while employee wages are only growing at four percent per year. As long as the school district in the example can increase funding to accommodate both salary growth and the increases in healthcare premiums, then employees are no worse off, in spite of the fact that, mathematically, a larger share of the expenditure pie is going to cover health insurance.[11] Second, there is the case where budget increases cannot accommodate the rapid growth in healthcare premiums and the premium increases begin to crowd out other budget items. This crowding out could result in general equilibrium adjustments that include slower hiring resulting in larger class sizes, fewer support workers, and reduced supplies.

[11] Taxpayers, however, would feel a larger burden.

Finally, there is the possibility that budget increases cannot accommodate rising benefit costs and workers are forced to accept a slower growth in wages.

Table 2.1 shows NCES financial data that suggest that during the last 10 years, the latter two responses have occurred. The data come from the National Center for Educational Statistics (NCES) Common Core of Data files, specifically, the item named "Local Education Agency (School District) Finance Survey (F-33) Data" (NCES, 2008). The data are available for every school district in the country from 1987 through 2005.

The implied general equilibrium effects have been somewhat ambiguous: The NCES annualized growth rate in teacher FTEs between 1996 and 2005 has been 1.73 percent while the student population has grown at only 0.85 percent, resulting in a falling pupil-teacher ratio nationwide (NCES 2008). Moreover, Table 2.1 shows that expenditure for student non-instructional support services has grown at a faster rate than overall expenditure. On the other hand, expenditures for other non-instructional services

Table 2.1: Annualized Growth in Expenditure by Function Between 1996-2005 (NCES 2008)

	Instructional	Support	Food Services	Enterprise	All Functions
Salary	4.47%	4.85%	3.77%	1.26%	4.56%
Benefits	5.96%	6.25%	5.61%	5.05%	6.04%
Compensation	4.80%	5.17%	4.21%	2.14%	4.89%
Total Expenditure	5.02%	5.38%	4.33%	2.10%	5.11%

like food services and enterprise operations have grown at a much lower rate than overall expenditure. Turning now to my first research question, it is clear that employee benefits for the four sectors represented by columns 2-5 in Table 2.1 are growing at a higher rate than expenditure within each sector and they are also growing at a higher rate than the

overall growth in expenditure, 5.11 percent. At the same time, salaries are growing at lower rates, suggesting that in all sectors, the high growth in the cost of benefits may be crowding out salary.

Figures 2.2 and 2.3 group all non-instructional services together and show instructional, non-instruction, and total expenditures for the 10 years between 1996 and 2005. Figure 2.2 shows the trend in the ratio of compensation to expenditure. Compensation is a much larger fraction of expenditure for instructional personnel and this ratio has fallen two percent over 10 years. For non-instructional personnel, the corresponding ratio has only fallen by one percent.

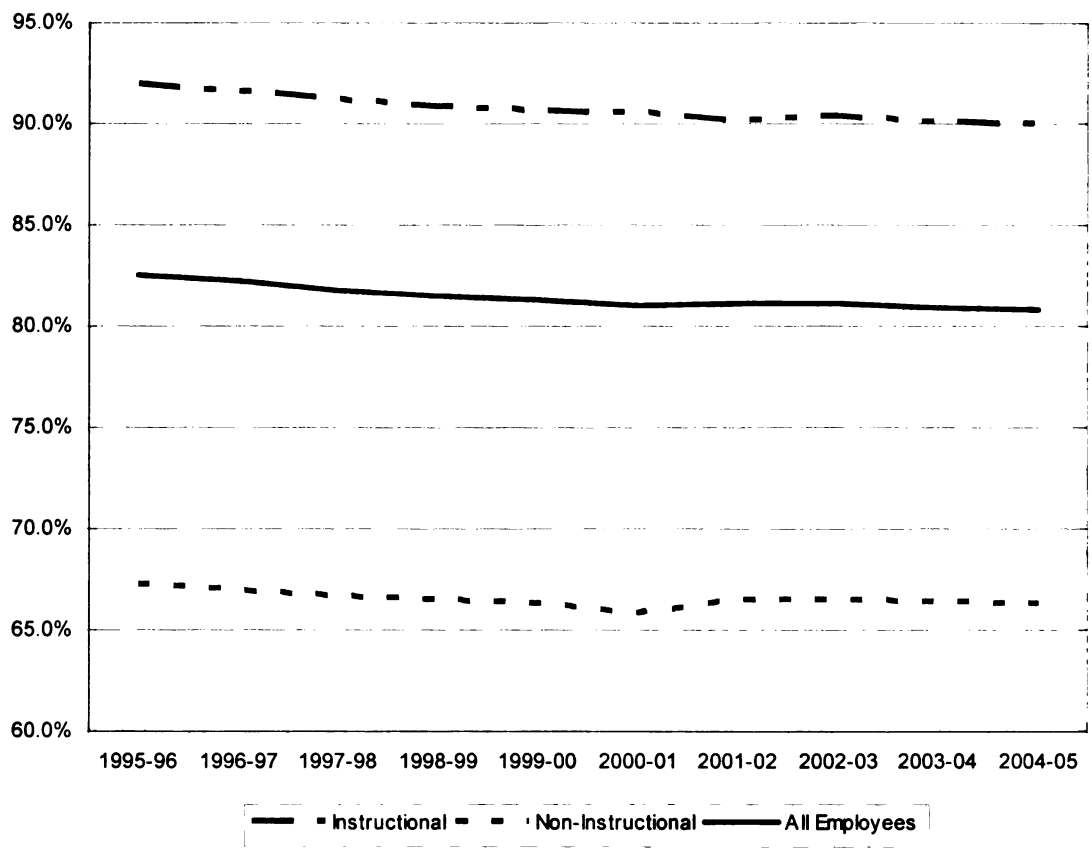

Figure 2.2: The Ratio of Compensation to Expenditure, 1996-2005 (NCES, 2008)

Figure 2.3 shows the ratio of employee benefits to compensation from 1996 to 2005. Due to the lower salaries of non-instructional personnel, employee benefits represent a larger fraction of their compensation.[12] Nevertheless, Figure 2.3 shows that the ratios for instructional and non-instructional personnel are moving in concert. Moreover, after an initial dip, these ratios have been increasing significantly since 2000.

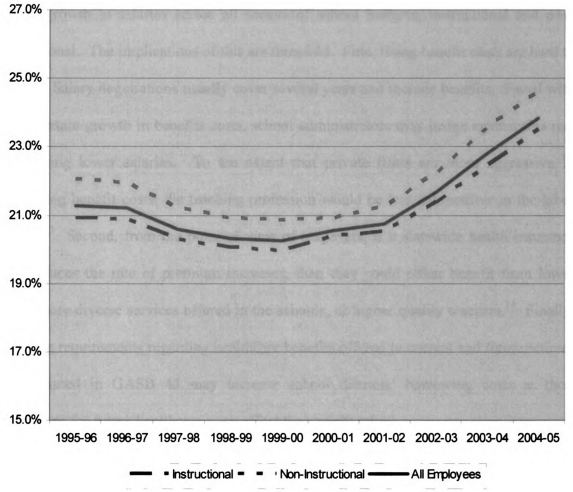

Figure 2.3: The Ratio of Benefits to Compensation, 1996-2005 (NCES, 2008)

[12] The low-salary effect is slightly offset by the fact that (1) there are a larger number of part-time employees in the non-instructional roles who do not receive benefits; and (2) pension contributions, which are partially based on final average salary, are included in benefits.

Table 2.1 and Figures 2.2 and 2.3 by no means provide conclusive evidence of a crowding out effect, but the NCES data do provide suggestive evidence that there have been some minor general equilibrium effects on school budgets due to the rising cost of employee benefits. Expenditures for food services and enterprise operations have grown at a slower rate than the growth in overall operating expenditures. But by far the largest impact of rising benefit costs—the bulk of which are for health insurance—has been a slower growth in salaries across all sectors of school budgets, instructional and non-instructional. The implications of this are threefold. First, rising benefit costs are hard to predict. Salary negotiations usually cover several years and include benefits. Faced with the uncertain growth in benefits costs, school administrators may hedge against this risk by offering lower salaries. To the extent that private firms are more aggressive in controlling benefit costs, the teaching profession would be less competitive in the labor market.[13] Second, from the point of view of taxpayers, if a statewide health insurance plan reduces the rate of premium increases, then they could either benefit from lower taxes, more diverse services offered in the schools, or higher quality teachers.[14] Finally, reporting requirements regarding healthcare benefits offered to current and future retirees encompassed in GASB 45 may increase school districts' borrowing costs as their obligations for future healthcare costs affect their credit rating.

[13] Unless teachers value healthcare more than salary and would rather that their employer assume the risk associated with unpredictable cost increases. Of course, other occupations also provide healthcare, so prospective teachers would be weighing the wage differential against the difference between the healthcare plans.

[14] to the extent that more resources devoted to teacher salaries would increase the quality of teaching.

Statewide Health Insurance Plans

The analysis of nationwide trends in school expenditure allocation in the previous section provides a nice transition to a more rigorous treatment of the second research question, which will examine the extent to which a statewide, single-payer healthcare plan for school employees reduces costs. Most states leave decisions regarding school employee healthcare up to the school districts, which has resulted in a variety of health insurance plans across the country. Moreover, in states with a statewide health insurance plan for school employees, there are numerous incentives to encourage school districts to offer cheaper plans and to steer school employees into those plans, ranging from mandates to cheaper rates. There were two states with mandatory statewide healthcare plans in place by 2005, Delaware and North Carolina. The Delaware plan was started in 1994 and is offered to all school employees. North Carolina has a longstanding plan offered to all school employees. Texan and New Mexico have hybrid plans, which are mandatory for small school districts and voluntary for large districts. The Texas plan was established in 2002 and is mandatory for school districts with fewer than 500 employees and voluntary for larger districts.[15] The New Mexico plan began in 1983 and it is mandatory for school districts with fewer than 60,000 pupils and voluntary for larger districts.[16] All districts are currently in the New Mexico plan except Albuquerque. Of the states that have voluntary healthcare plans, I considered only Alabama, whose plan dates back to 1983 and is offered in all districts in the state, to have large enough enrollment to warrant inclusion with the mandatory plans (Mercer Health & Benefits, 2006; Oregon School Boards Association, 2007).

[15] Once a district joins the pool, they are not allowed to leave.
[16] A district must petition to leave the pool; they must repay claim deficits; and they may not rejoin the pool.

Hierarchical Linear Model of Expenditure for Employee Healthcare Across States

I will use a three-level hierarchical linear model (HLM) for healthcare expenditure to estimate the impact from the implementation of a statewide healthcare plan. The model will cover five years of data (Level 1), for school districts (Level 2) in all 50 states and the District of Columbia (Level 3). There are three dependent variables, which will be treated as separate scenarios:

1. Employee benefits for instruction divided by the total number of teachers.[17]
2. Employee benefits as a fraction of compensation for instructional personnel, where compensation is salary + employee benefits.
3. Employee benefits as a fraction of compensation for all school employees (not just instruction).

The dependent variable in Scenario 1 is annual per-employee expenditures for benefits. The estimated coefficients represent dollar amounts corresponding to the impact of the independent variables on these expenditures. While the estimated coefficients are easy to interpret, this model suffers from the fact that there are large differences in health insurance premiums across school districts. In order to overcome the variation in healthcare premiums, Scenarios 2 and 3 use the ratio of benefits to compensation. Moreover, these scenarios address the phenomenon of benefits crowding out salary by showing the impact of a statewide health insurance plan in reducing the fraction of compensation devoted to employee benefits. Scenario 2 shows the fraction of

[17] Note that there is a slight mismatch between the two variables: the benefits are for instruction and the denominator counts only teachers. The resulting variable is higher than it would have been had the FTEs for instruction been available, but since all LEAs are using the same basis, it should not bias the results.

compensation devoted to benefits for instructional personnel while Scenario 3 shows the fraction for all employees. The results for the last two cases are shown together in Table 5B in order to allow a direct comparison.

Constructing the Datasets[18]

Level 1. The indices for Level 1 are: state ID code (STATEID), school district ID (LEAID), and a time dummy variable equal to the year minus 2005 (TIME). In preparing the data, certain edits were made to eliminate extraneous and incomplete data. Appendix 2.1 details the edits that were made to the data at Level 1. The Level-1 data span five years and the time element is an important aspect of the growth of employee benefits.[19]

Level 2. The second level of the HLM is the school district level with variables taken from the 2000 U.S. Census. The indices at Level 2 are STATEID and LEAID. The poverty rate and the unemployment rate were included in Level 2 to reflect the state of the local economy and its impact on the healthcare market. Presumably the worse off the local economy in the LEA, the more stringently the school employees will cling to their health benefits. Moreover, in a poor economy, the higher the likelihood that more spouses and children will be included in the LEA's health insurance plan. There is also the possibility that the predicted effects of the Level 2 explanatory variables may be

[18] The layout of all three datasets is given in Appendix B.

[19] Because this variable is an integer, it is important to specify where the intercept lies for the HLM software. With mean centering, the intercept will be set to the middle of the five years' data, or 2002-03. Since this analysis is modeling the potential impact of a statewide health insurance plan in reducing health insurance premiums, forcing the intercept to occur in the last year will model the cumulative effect of the statewide health plans. In order to do this, I coded the time variable from –4 to 0 and did not center it, knowing that the HLM software will therefore place the intercept where time=0.

different across the three dependent variables. In Scenario 1, where the dependent variable is per-employee benefit expenditure, poverty and unemployment could have a negative effect by virtue of the fact that they are proxies for local resources and district fiscal capacity. In contrast, the dependent variables in Scenarios 2 and 3 are ratios that include salaries in the denominator. If salaries are more responsive to local economic conditions than benefit costs, high unemployment and poverty would reduce the denominator and have a positive impact on the dependent variables in Scenarios 2 and 3.

Level 3. The Level-3 model represents the variability among states. The index at Level 3 is STATEID. The NCES financial survey data lump health insurance with other employee benefits. In order to control for the growth of pension contributions, the Level-3 model controls for the statewide average age, average experience, and average salary of teachers in each state. Controlling for these three variables should help isolate the growth of health insurance premiums from any changes due to pension contributions.[20] With only 51 states[21] at Level 3, the model sacrifices three degrees of freedom to accommodate the pension variables.

School administrators can also change the healthcare plan designs to reduce premium rates. Typically, this involves changing employee contribution rates, deductibles, and coinsurance levels. In order to control for variability in plans offered to employees, the model includes the percentage of teachers in the state who belong to a teachers union. Union strength will counter the ability of administrators to push more of the costs of healthcare onto school district employees. A highly unionized state should

[20] Other benefits like dental and vision are a small fraction of employee benefits.
[21] The District of Columbia is treated as a state.

see a more rapid increase in expenditure for heath insurance because administrators will not be able to push some of the premium increases onto employees. The implication for Scenario 1 is a negative correlation between union membership and per-employee benefit expenditure. The implications for Scenarios 2 and 3 will depend on the priority the union members place on salary or whether they are willing to accept lower salary increases in order to protect their benefits. UNIONPCT is a variable that shows the percentage of teachers in the state who belong to a teacher's labor union. The union data came from TeachersUnionFacts (2008).

While healthcare inflation data not available at the school district level, the HLM can incorporate healthcare inflation data at the state level. In order to control for the variability in health insurance premiums across states, ST_HEALTH_PREM_IDX is an index that shows each state's general health insurance costs relative to other states nationally. The average rates were taken from *Table VIII.C.1(2005)* of the Medical Expenditure Panel Survey (AHRQ, 2008), which shows average total single premium (in dollars) per enrolled employee at private-sector establishments that offer health insurance for fiscal year 2005. I divided each state's average premium by the state with the lowest average premium to create the index.

Finally, the policy variable of interest is the presence of a statewide health insurance plan for school employees. I used two reports, one produced by the Oregon School Boards Association, titled *Few States Have Implemented Statewide Pooling for Teachers* (2007), and another by the consulting firm Mercer Health & Benefits, titled *Interim Report to the School Employees Heath Care Board*[22](2006). Based on these reports, I determined that five states have a strong statewide heath insurance pool:

[22] Of Ohio.

Alabama, Delaware, New Mexico, North Carolina and Texas. Other states may have a statewide pool, but they have not established strong incentives for school district employees to join the plan. A strong incentive would be either a mandate or price incentives whereby the statewide pool is the cheapest plan offered. Note that Kentucky now has a statewide health insurance plan for school employees, but it was not started until January 1, 2006, which is not covered in the NCES financial data used in this study. The Level-3 data contain a dummy variable, STATE_INCENTIVE, which is one for the five states with strong incentives to join the school employee health insurance pools and zero for all other states.

Note that STATE_INCENTIVE is a policy variable. There is also a POOL dummy variable at Level 1 of the HLM, which is set to one for school *districts* that offer a statewide healthcare plan whether or not the state has a strong incentive. California and New Jersey have statewide health plans but they do not have strong incentives for employees to enroll in the plans. The Web sites for the benefits plans covering employees in California and New Jersey show which school districts offer the statewide plan for each of the five years in this study. Texas provides a similar listing. The POOL variable was assigned using these reports. In addition, Delaware and North Carolina have had longstanding plans in which school employees are enrolled in the statewide health plan, so the POOL dummy variable was set to one for all districts in all years for Delaware and North Carolina. Similarly, all districts in Alabama and all districts in New Mexico except Albuquerque were set to one. The POOL variable was set to one for 8.4 percent of all the Level-1 records. Table 2 shows the percentage of districts in California,

New Jersey and Texas that offer their respective statewide plans over the five years of this study.

Table 2.2 The Percentage of School Districts Offering the Statewide Plan, 2001-2005

State	2000-01	2001-02	2002-03	2003-04	2004-05
California	9.7%	9.7%	9.5%	9.9%	10.5%
New Jersey	46.3%	45.7%	46.1%	46.1%	46.1%
Texas	0.0%	0.0%	72.5%	81.5%	84.3%

The HLM Models

The report estimates four HLM equations for Scenario 1 in order to give a full treatment of the various aspects of the dataset. The results for these four equations are show in Tables 3A through 3D. Scenario 2 includes a model that employs an inverse logistic transformation of the dependent variable in order to de-emphasize the extreme values. By eliminating the less useful models of Scenarios 1 and 2, the final scenario estimates only a fully unconditional HLM and what I call a parsimonious HLM, containing only one variable at Level 3. Scenarios 2 and 3 have dependent variables that are ratios between zero and one and the final results from these models are shown together in Table 5B. All of the HLM equations in this study estimate fixed effects, meaning that the intercepts of each variable are allowed to vary but the slopes are not.

Scenario 1

This scenario is the only one with a dependent variable that is a dollar amount, which makes it the most intuitively appealing. The dependent variable in Scenario 1 is

benefit expenditure per teacher, BENEFITS/TEACHER, where employee benefits include: health insurance, pension contributions, dental, vision, and prescription drug coverage. The values of the dependent variable range from a minimum of $108 up to a maximum of $72,000. There were 67,541 time-varying school district records at Level 1, 13,922 static school district records at Level 2, and 51 state records at Level 3.

A. Fully Unconditional Model

The most basic three-level HLM is a fully unconditional model. The model shows how variation in the dependent variables is spread across three different levels—time, school district, and state. No predictor variables are specified at any level (Raudenbush and Bryk, 2002).

Level 1:

$$\text{BENEFITS/TEACHER}_{tds} = \pi_{0ds} + e_{tds} \quad (2.1)$$

where

π_{0ds} is the district mean;

e_{tds} is a random time effect, or the deviation at time t from the school district's mean.

Level 2:

The district level mean will be modeled as:

$$\pi_{0ds} = \beta_{00s} + r_{0ds} \quad (2.2)$$

where

β_{00s} is the mean value of the dependent variables per district in state s;

r_{0ds} is the random district effect or the deviation of district d's mean from the state mean.

Level 3:

The state level mean will be modeled as:

$$\beta_{00s} = \gamma_{000} + u_{00s} + \quad (2.3)$$

where

γ_{000} is the grand mean;

u_{00s} is a random state effect.

B. Full Model

The full model incorporates all the relevant data that are available in the dataset.

Level 1:

$$Y_{tds} = \pi_{0ds} + \pi_{1ds}(TIME)_{tds} + \pi_{2ds}(POOL)_{tds} + \pi_{3ds}(URBAN)_{tds} +$$

$$\pi_{4ds}(INSTR/PUPIL)_{tds} + e_{tds} \quad (2.4)$$

where

Y_{tds} is BENEFITS/TEACHER;

$TIME_{tds}$ is the year dummy variable (2001=-4, …, 2005=0);

$POOL_{tds}$ is a dummy variable set to one if that district is in a state insurance pool in year t and zero otherwise;

$URBAN_{tds}$ is a dummy variable set to one for urban school districts and zero otherwise;

$INSTR/PUPIL_{tds}$ in the per-pupil expenditure for instruction in the district in year t;

π_{0ds} is the final state of the independent variable for non-urban districts with no statewide health insurance pool who spent the mean value on instruction in year t;

π_{1ds} is the growth in the dependent variable through time for district *ds*;

π_{2ds} is the effect of belonging to the statewide health insurance pool for district *ds*;

π_{3ds} is the growth in urban districts;

π_{4ds} is the effect of instructional expenditure;

e_{tds} is a random time effect, i.e., the deviation in the dependent variable at time t from that school district's average.

Level 2:

The district level means will be modeled as:

$$\pi_{0ds} = \beta_{00s} + \beta_{01s}(\text{UNEMPLOYMENT})_{ds} + \beta_{02s}(\text{POVERTY})_{ds} + r_{0ds} \quad (2.5a)$$

$$\pi_{1ds} = \beta_{10s} \quad (2.5b)$$

$$\pi_{2ds} = \beta_{20s} \quad (2.5c)$$

$$\pi_{3ds} = \beta_{30s} \quad (2.5d)$$

$$\pi_{4ds} = \beta_{40s} \quad (2.5e)$$

where

β_{00s} is the mean value of the dependent variables per district in state s;

$UNEMPLOYMENT_{0ds}$ is the unemployment rate in district d within state s;

$POVERTY_{0ds}$ is the poverty rate in district d within state s;

β_{01s} is the effect of unemployment for district d in state s;

β_{02s} is the effect of poverty for district d in state s;

β_{42s} is the effect of poverty on instructional expenditure for district d in state s;

TIME, POOL and URBAN are assumed to have fixed effects across districts and states;

r_{0ds} is the random district effect or the deviation of district ds's mean from the state mean.

Level 3:

The state level mean will be modeled as:

$$\beta_{00s} = \gamma_{000} + \gamma_{10s}(\text{STATE\_INCENTIVE})_s + \gamma_{20s}(\text{UNIONPCT})_s +$$

$$\gamma_{30s}(\text{ST\_HEALTH\_PREM\_IDX})_s + \gamma_{40s}(\text{AVGAGE})_s +$$

$$\gamma_{50s}(\text{AVGEXPER})_s + \gamma_{60s}(\text{AVGSAL})_s + u_{00s} \quad (2.6a)$$

$$\beta_{01s} = \gamma_{010} \quad (2.6b)$$

$$\beta_{02s} = \gamma_{020} \quad (2.6c)$$

$$\beta_{10s} = \gamma_{100} \quad (2.6d)$$

$$\beta_{20s} = \gamma_{200} \quad (2.6e)$$

$$\beta_{30s} = \gamma_{300} \quad (2.6f)$$

$$\beta_{40s} = \gamma_{400} \quad (2.6g)$$

where

γ_{000} is the grand mean;

$\text{STATE\_INCENTIVE}_{00s}$ is a dummy variable set to one if the state has a strong incentive for districts to join the statewide health insurance pool and zero otherwise;

UNIONPCT_{00s} is the percentage of teachers in the state who belong to a union;

$ST\_HEALTH\_PREM\_IDX_{00s}$ is a health insurance premium index for the state in 2005;

$AVGAGE_{00s}$ is the average age of teachers in the state;

$AVGEXPER_{00s}$ is the average experience of teachers in the state;

$AVGSAL_{00s}$ is the average salary of teachers in the state;

γ_{10s} is the effect of statewide policy encouraging employees to enroll in the health insurance pool;

γ_{20s} is the effect of unionization;

γ_{30s} is the effect of health insurance premium differences across states;

γ_{40s} is the effect of average age (on the pension portion of employee benefits);

γ_{50s} is the effect of average experience (on the pension portion of employee benefits);

γ_{60s} is the effect of average salary (on the pension portion of employee benefits);

u_{00s} is a random state effect.

All of the other γs are assumed to be fixed effects across districts and states.

C. Models with Subsets of Variables at Level 3

In this model, Level 1 and Level 2 remain the same. The NCES financial data have the benefit of being available for all school districts across the country. Unfortunately, the data lump all employee benefits together and separate them only by the job type of the insured. Pension fund contributions are based on three factors: age, years of service, and salary (Bowers et al., 1985).[23] By controlling for those three variables, regression analysis can identify the impact of a statewide plan on health insurance premium increases independent of pension contributions (Wooldridge, 2000). With so few degrees of freedom at level 3, the analysis will proceed in two stages. The UNION and ST_HEALTH_PREM_IDX variables are dropped from the Pension regression model; they are put back in and the pension variables are removed in the Union-Cost Index regression model.

D. Parsimonious Model

Because of the small number of observations at the state level, this model retains only the state policy dummy variable at Level 3. Level 1 and Level 2 are the same. With so few degrees of freedom at Level 3, only the fully unconditional model and the parsimonious model are estimated for Scenarios 2 and 3.

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[23] The most common form of the pension accrual density function for a person age x, entering a pension plan at age a and facing retirement age r is given by:

$$m(x) = \frac{e^{-\delta x} s(x) e^{\tau x} w(x)}{\int_a^r e^{-\delta y} s(y) e^{\tau y} w(y) dy}$$

, where δ is the instantaneous force of interest, τ is the rate of decrement from the retirement plan, s(x) is the survival function, and w(x) is the wage growth function. The endogenous variables are age (x), years of service (r-a), and salary (w(x)).

HLM Results for Scenario 1

Table 2.3A shows the variance decomposition for the fully unconditional model. While it shows significant variation across all three levels of the model, most of the variance in employee benefits per teacher occurs across states. The variance decomposition indicates that 60.8 percent of the variation occurs at the state level, 20.8 percent at the district level, and 18.6 percent occurs over time. The fully unconditional model provides a baseline with which to compare the variance decomposition of the more sophisticated models that include predictor variables at the three levels of the HLM.

Table 2.3A: Fully Unconditional Model (dependent variable = BENEFITS/TEACHER)

Fixed Effect	*Coefficient*	*se*	*t Ratio*
Average state mean, γ_{000}	13,969.2	621.5	22.476

Random Effect	*Variance Component*	*df*	χ^2	*p Value*
Time (level 1), e_{tds}	5,923,046			
District (level 2), r_{0ds}	6,576,151	13,871	87,546	0.000
State (level 3), u_{00s}	19,405,104	50	40,040	0.000

Variance Decomposition (Percentage by level)	
Time (level 1)	18.6%
District (level 2)	20.6%
State (level 3)	60.8%

The full model includes the largest group of predictor variables, the results of which are displayed in Table 2.3B. At the time-varying district level, the four variables have plausible and statistically significant coefficients. Benefit costs per teacher are increasing at a rate of approximately $985 per year. In addition, urban and wealthier

districts pay slightly more for employee benefits each year. Turning to part of the research question, it does appear that a district's membership in a statewide group health plan does reduce employee benefit costs by about $1,284 per year. At the static district level, unemployment and poverty appear to be somewhat redundant, with unemployment dominating this particular regression analysis and having a large, positive and statistically significant impact on employee benefit expenditure. On possible explanation is that a higher unemployment rate results in school employees adding more spouses and children to the health plan as dependents.

It is clear from the fully unconditional model of Scenario 3A that most of the variation in employee benefit expenditure is at the state level. Unfortunately, there are only 51 data points with which to estimate the Level-3 effects. The paucity of data at the state level has led to large standard errors at Level 3 and only one coefficient being statistically different from zero. Moreover, one aspect of the research question—whether a state policy that either mandates or strongly encourages school districts to join a statewide health insurance pool reduces costs—remains unanswered because the coefficient of the state plan dummy is not statistically significant. It may just be that the Level 3 state pool dummy variable is redundant in conjunction with the more statistically significant dummy variable at Level 1, which shows whether any particular district offered a statewide health plan in that year.[24] The following two models attempt to break up the state level variables into two subsets of the six variables used in Scenario 3B in

[24] Recall that only five states have the statewide pool dummy variable set to one. California, for example, does not have strong incentives for districts to offer the statewide pool option (and only about 10 percent do) yet I was able to identify those districts that were in the pool in each year of the study when assigning the district pool dummy variable at Level 1.

Table 2.3B: Full Model (dependent variable = BENEFITS/TEACHER)

Fixed Effect	Coefficient	s.e.	t Ratio	p-value
Average state mean, γ_{000}	16,007.6	437.69	36.573	0.000
Time-varying district characteristics				
Time dummy	984.6	5.63	174.785	0.000
Pool dummy	-1,284.1	53.42	-24.040	0.000
Urban dummy	158.6	44.72	3.547	0.001
Instructional expenditure per pupil	0.3	0.01	30.179	0.000
Static district characteristics				
Unemployment rate	13,007.8	1,302.46	9.987	0.000
Poverty rate	144.4	416.60	0.347	0.729
State characteristics				
Average age	194.2	486.18	0.399	0.691
Average experience	344.2	399.14	0.862	0.393
Average salary	0.3	0.09	3.956	0.000
Union percentage	1,844.0	1,408.08	1.310	0.197
2005 health ins. premium index	9,399.7	5,312.52	1.769	0.083
State plan dummy	1,090.9	1,544.84	0.706	0.484

order to evaluate the impact of a state health insurance policy while preserving degrees of freedom.

Table 2.3C shows the results with the sets of variables alternatively eliminated. The pension, union, and insurance premium index variables have the expected signs, but the estimated coefficient on the state plan dummy is not statistically different from zero. For the sake of parsimony, it would be desirable to aggregate the three pension variables into one index. Unfortunately, the reliability of these three variables, as reflected by Cronbach's alpha, is negative due to a negative correlation between salary and the other two variables. This is most likely due to variations in the cost of living across states. When the average salaries were adjusted with the Comparable Wage Index from NCES, the average wage was then positively correlated with both average age and average experience, but the reliability statistic was not large enough to justify a composite index of the three variables. The union membership and health insurance cost index variables

have positive and statistically significant estimated coefficients, but the state plan dummy variable is still not statistically significant.

The final model for Scenario 1 removes all but the state plan dummy variable from Level 3. Table 2.3D shows that the state policy dummy now has a negative sign, though it is still not statistically significant. In spite of its lack of statistical significance,

Table 2.3C: Subset Models (dependent variable = BENEFITS/TEACHER)

	Pension Variables Controlled		Union & Cost Index Included	
Fixed Effect	Coefficient	t Ratio	Coefficient	t Ratio
Average state mean, γ_{000}	16,051.0	35.029	16,007.9	31.838
Time-varying district characteristics				
Time dummy	984.6	174.786	984.6	174.785
Pool dummy	-1,284.3	-24.043	-1,283.9	-24.035
Urban dummy	158.6	3.547	158.6	3.547
Instructional expenditure per pupil	0.3	30.179	0.3	30.179
Static district characteristics				
Unemployment rate	13,007.7	9.987	13,007.9	9.988
Poverty rate	144.4	0.347	144.4	0.347
State characteristics				
Average age	548.2	1.137		
Average experience	326.0	0.781		
Average salary	0.5	6.942		
Union percentage			4,414.9	3.086
2005 health ins. premium index			18,453.9	3.456
State plan dummy	747.9	0.476	849.5	0.504

it is interesting to note that the coefficient of the state policy dummy variable has roughly the same magnitude as the pool variable at Level 1. The parsimonious model suggests that a school district's membership in a statewide health insurance plan in a state with a strong incentive to join the plan can reduce employee benefit expenditures by $1,284 due to membership in the plan and potentially another $1,182 due to the state policy itself (though the latter effect is not statistically significant).

Scenario 2

Including a state-level health insurance premium index was a crude attempt to control variation in healthcare inflation across school districts. This case uses a

Table 2.3D: Parsimonious Model (dependent variable = BENEFITS/TEACHER)

Fixed Effect	Coefficient	t Ratio
Average state mean, γ_{000}	16,195.4	24.930
Time-varying district characteristics		
Time dummy	984.6	174.785
Pool dummy	-1,284.0	-24.037
Urban dummy	158.6	3.547
Instructional expenditure per pupil	0.3	30.179
Static district characteristics		
Unemployment rate	13,007.8	9.988
Poverty rate	144.4	0.347
State characteristic		
State plan dummy	-1,181.9	-0.572

dependent variable based on the ratio of benefits to compensation in another attempt to overcome the effects of widely varying healthcare costs on school districts' benefit expenditures. In the previous case the dependent variable was employee benefit expenditure per teacher. While it is intuitively appealing to show estimated regression coefficients that correspond to dollar amounts, it raises the question of health insurance cost differences across school districts. In order to avoid the problems associated with health insurance premium differences across school districts, Scenarios 2 and 3 analyze dependent variables that are ratios based on expenditures for employee benefits and compensation.

Scenario 2 focuses on expenditure for those employees involved in instruction. The dependent variable, IBENCOMP, ranges from 3 percent to 52 percent.

The Level 1 equation for Scenario 2A is given by:

$$IBENCOMP_{tds} = \pi_{0ds} + e_{tds} \tag{2.7}$$

where

π_{0ds} is the district mean;

e_{tds} is a random time effect, or the deviation at time t from the school district's mean.

The Level-2 and Level-3 equations are given by Equations 2.2 and 2.3 above. Similarly, Table 2.4B is simply the parsimonious regression of Table 2.3D with the dependent variable IBENCOMP.

The dependent variables in Scenarios 2 and 3 are all ratios between zero and one. In transforming large variables into an index between zero and one, the logistic function tends to emphasize extreme values because of the sigmoid, or S-shaped, nature of the function. In this application, it might be appropriate to de-emphasize the extreme values of the ratio of employee benefits to total compensation.[25] Scenario 2 estimates a three-level HLM that uses the inverse logistic transformation on the ratio of employee benefits to total compensation for employees involved in instruction. The inverse logistic transformation is given by the following formula:

$$InvLogit(IBENCOMP) = \frac{e^{IBENCOMP}}{1 + e^{IBENCOMP}} \tag{2.8}$$

[25] Conversation with Ken Frank.

HLM Results for Scenario 2

Table 2.4A shows the fully unconditional mode. Table 2.4B shows the parsimonious regression model of Table 2.3D with the new dependent variable. In addition, Table 2.4B shows the estimated coefficients for an inverse logistic model, where the dependent variable has been transformed with the inverse logistic function in order to de-emphasize extreme values of the dependent variable.

The small estimated coefficients belie the true impact of these variables. A school district's membership in a statewide health insurance pool reduces the share of compensation devoted to employee benefits for employees involved in instruction by approximately 0.44 percent. In 2004-05, the Houston Independent School District spent just over $762 million in compensation for instruction. A 0.44 percent reduction would have saved the district over $3.3 million, so the practical significance of these coefficients should not be overlooked.

While the interpretation of the estimated coefficients in column four is not obvious, the inverse logistic function is a monotonic transformation of the original ratios and the signs of the estimated coefficients remain the same as in column two. Moreover, the t-ratios have all increased in absolute value suggesting that the extreme values for the ratio of instructional employee benefits to compensation may be inflating the standard errors in the estimated regression equation. Due to the abstruse nature of the estimated coefficients with the inverse logistic transformation, the remaining scenario shows only the unadjusted dependent variables.

Table 2.4A: Fully Unconditional Model (dependent variable = IBENCOMP)

Fixed Effect	*Coefficient*	*se*	*t Ratio*
Average state mean, γ_{000}	0.2187	0.0053	41.383

Random Effect	*Variance Component*	*df*	χ^2	*p Value*
Time (level 1), e_{tds}	0.00043			
District (level 2), r_{0ds}	0.00063	13,879	113,004.7	0.000
State (level 3), u_{00s}	0.00140	50	31,666.3	0.000

Variance Decomposition (Percentage by level)	
Time (level 1)	17.5%
District (level 2)	25.6%
State (level 3)	56.9%

Table 2.4B: Instructional Emp. Models (dependent vars are IBENCOMP and InvLogit(IBENCOMP))

	Parsimonious Model		Inverse Logistic Model	
Fixed Effect	Coefficient	t Ratio	Coefficient	t Ratio
Average state mean, γ_{000}	0.236049	40.275	0.558705	415.274
Time-varying district characteristics				
Time dummy	0.007345	9.889	0.001811	143.942
Pool dummy	-0.004350	-2.153	-0.001039	-8.511
Urban dummy	0.001135	1.014	0.000279	2.771
Instructional expenditure per pupil	0.000002	2.573	0.000000	19.981
Static district characteristics				
Unemployment rate	0.130200	6.686	0.032124	10.486
Poverty rate	0.026009	2.132	0.006404	6.536
State characteristic				
State plan dummy	-0.021260	-1.003	-0.005286	-1.236

Scenario3

The first two cases focused on expenditures for instructional personnel. This scenario analyzes the ratio of employee benefits to compensation for all school district

employees, TBENCOMP. This ratio has a larger spread, from a minimum of 1 percent to a maximum of 68 percent, than the similar ratio for instructional employees, which ranged from 3 percent to 52 percent. The results for Scenario 3 are shown beside the similar HLM from Scenario 2 in Table 2.5B in order to show the similarities between the model for instructional personnel and the model for all employees.

HLM Results for Scenario 3

Table 2.5A shows the distribution of variance across the three levels of the HLM and Table 2.5B shows the three-level HLM for the ratio of benefits to compensation for all school district employees. For the sake of comparison, Table 2.5B also includes the estimated coefficients from the parsimonious model of Scenario 2.

Table 2.5A: Fully Unconditional Model (dependent variable = TBENCOMP)

Fixed Effect	*Coefficient*	*se*	*t Ratio*
Average state mean, γ_{000}	0.2210	0.0053	41.736

Random Effect	*Variance Component*	*df*	χ^2	*p Value*
Time (level 1), e_{tds}	0.00041			
District (level 2), r_{0ds}	0.00060	13,882	113,703.7	0.000
State (level 3), u_{00s}	0.00141	50	32,657.5	0.000

Variance Decomposition (Percentage by level)	
Time (level 1)	16.9%
District (level 2)	24.8%
State (level 3)	58.3%

In Scenario 3, the estimated coefficients are similar across the two models, though the larger spread of the dependent variable for all employees appears to have lowered the

standard errors and thereby raised the t-statistics in column three compared to column five of Table 2.5B.

Table 2.5B: All Employee Model (dependent variables are TBENCOMP and IBENCOMP)

	All Employees		Instructional Employees	
Fixed Effect	Coefficient	t Ratio	Coefficient	t Ratio
Average state mean, γ_{000}	0.238535	43.435	0.236049	40.275
Time-varying district characteristics				
Time dummy	0.007575	155.319	0.007345	9.889
Pool dummy	-0.004327	-9.114	-0.004350	-2.153
Urban dummy	0.000661	1.695	0.001135	1.014
Instructional expenditure per pupil	0.000002	18.988	0.000002	2.573
Static district characteristics				
Unemployment rate	0.130812	10.763	0.130200	6.686
Poverty rate	0.026643	6.853	0.026009	2.132
State characteristic				
State plan dummy	-0.018236	-1.044	-0.021260	-1.003

A Detailed Study of California and Texas

The HLM analysis above was limited by the fact that the nationwide data from NCES group all employee benefits together. It would be preferable to have expenditures for health insurance separate from other benefit expenditures like pension contributions, dental insurance and vision care plans. Moreover, it would be helpful to have detailed data for a state with a large number of school district employees enrolled in a statewide health plan. Finally, it will also be necessary to have accurate counts of employees either offered or enrolled in the various health plans on offer. Two states met the above criteria: California and Texas.

California. The Californian Department of Education maintains downloadable data files from the annual report *Salary and Benefits Schedule for the Certificated Bargaining Unit* (Form J-90) for all years since 1999-2000 (CDE, 2008). The data include the salary grade, which is defined by a two-dimensional array consisting of steps and columns[26], the type of benefit (health, life, dental, etc.), the annual cost of the benefit, the employer contribution, and the number of full-time employees eligible for the benefit in that salary grade. The data cover certificated employees, who include teachers, administrators, and certain other employees involved in pupil services such as school nurses. The Form J-90 data are based on a survey with a response rate above 82 percent for the five years of this study. I appended the Form J-90 data to my existing Level-1 data from the HLM for California.[27]

The model includes three dependent variables for each school district: the average cost of the benefit per FTE, the average employer contribution per FTE, and the average employee contribution by FTE. For each school district these three variables had a variety of values based on the step and column of the pay grade. The average cost and average employer contribution variables are weighted averages based on the number of FTEs eligible at that pay grade and summed across the entire school district. The average employee contribution is simply the difference between the average cost and the employer contribution for each school district. The estimated OLS equations are as

[26] Each step and column is defined by the school district, so one cannot assume that someone in step 1, column 1 in one school district is in the same salary range or job function as a similarly designated employee in another school district (phone conversation with Barbara Henderson from the California Department of Education).

[27] Two districts were eliminated from the data because of likely miscoding. One district had an average annual health insurance cost of less than $100 per employee; the other had an average cost over $20,000.

follows:

$$Y_t = \beta_0 + \beta_1(\text{URBAN})_t + \beta_2(\text{INSTR/PUPIL})_t + \beta_3(\text{POOL})_t + \beta_4(t) + \varepsilon_t \quad (2.9)$$

where

Y_t represents the three dependent variables: average cost per FTE, average employer contribution per FTE, and average employee contribution per FTE;

URBAN is 1 if the school district was urban in year t and 0 otherwise;

INSTR/PUPIL is total expenditure for instruction in the district divided by the number of pupils;

POOL is 1 if the district offered the CalPERS health plan to its employees in year t and 0 otherwise;

t is the time index and ranges from 0 for 2000-01 up to 4 for 2004-05.

Texas. The Form J-90 data from California show the number of people eligible for each benefit level and the price of each plan. The Texas Education Agency (TEA) maintains the Public Education Information Management System (PEIMS), which contains annual "Financial Actual Data" (TEA, 2008). These files contain detailed expenditure data from which I was able to identify instructional expenditure (function code 11) for "GROUP HEALTH & LIFE INSURANCE" (object code 6142). In

addition, I contacted the Information Analysis Division of the TEA and they provided me with FTE counts for instruction by school district for each year of this study.[28]

The detailed data from Texas enabled me to model health expenditure per FTE as a function of the same independent variables that I used in California. The estimated pooled OLS equation is:

$$(\text{Health Exp/FTE})_t = \beta_0 + \beta_1(\text{URBAN})_t + \beta_2(\text{INSTR/PUPIL})_t + \beta_3(\text{POOL})_t + \beta_4(t) + \varepsilon_t \quad (2.10)$$

Pooled OLS Results for California and Texas

California and Texas offer an opportunity to compare two states with different policies to promote their statewide healthcare plans. Texas has a strong mandate for school districts to join the statewide health insurance pool administered by the Texas Retirement System (TRS) while California relies on expected cost savings to entice school districts to offer the CalPERS health plan.

California. Health benefit costs are high in California, with the mean annual cost per FTE over $6,600. Benefits are a key component of collective bargaining agreements, which are negotiated at the local level. Localized contract negotiations have resulted in a wide range of salary and benefit levels across the state. This is reflected in a diversity of steps and column configurations for school district positions across California. Moreover, the panoply of position definitions has a correspondingly diverse configuration of cost-sharing arrangements between employer and employee. In general, health benefits are offered through a cafeteria plan in which multiple traditional and

[28] There were 16 school districts eliminated from the data due to obvious coding errors.

managed care options are available. Collective bargaining specifies the employer contribution and the employees must make up the difference to buy-up to the more expensive health benefit packages. Table 2.6 shows that localized negotiations have led to large standard deviations and high spreads between the minimum and maximum average values of the three dependent variables across school districts.

The results of the pooled OLS regression for Equation 2.9 are displayed in Table 2.7 for all three dependent variables. The estimated coefficients on the time variable are all positive and significant, indicating that health benefits costs are increasing from year

Table 2.6: Summary Statistics for Dependent Variables – California

	Avg. Cost/FTE	Avg.Employer Contrib./FTE	Avg.Employee Contrib./FTE
Mean	$6,606	$5,805	$800
Standard Deviation	1,805	2,120	1,257
Minimum	619	0	524
Maximum	13,236	12,636	9,549

to year. It is worth noting that costs are rising more slowly in urban school districts, possibly due to competition resulting from more insurance providers in urban areas. Moreover, employers are reaping more than 90 percent of these cost savings in urban districts. Finally, this analysis confirms the finding of the HLM model: offering the CalPERS statewide health benefit plan lowers the average cost per FTE of health insurance. Again, the benefit of these savings accrues overwhelmingly to the employers. In fact, the estimated coefficient on the average employee contribution is positive and highly significant, suggesting that school districts that offer CalPERS are not only

aggressively fighting health insurance premium increases, but they are also effective at pushing some of those costs onto employees.

Table 2.7: Pooled OLS Regression Results for California

Dependent variables→ ↓Independent variables	Avg Cost/FTE	Avg. Employer Contrib./FTE	Avg. Employee Contrib./FTE
constant	5,695	5,034	661
	(62.649)	(41.019)	(7.999)
Urban Dummy	-664***	-600***	-64
	(-14.455)	(-9.674)	(-1.534)
Instructional Expenditure/Pupil	-0.032*	0	-0.031**
	(-1.874)	(-.013)	(-2.041)
District Participates in State Pool	-824***	-1,409***	585***
	(-11.220)	(-14.206)	(8.750)
Time	790***	654***	136***
	(51.764)	(31.756)	(9.779)
n	3,988	3,988	3,988
R^2	0.438	0.258	0.042

* p<0.10 ** p<0.05 ***p<0.01 (t-statistics in parentheses)

Texas. The mean healthcare benefit expenditure is much lower in Texas than it was in California, though the standard deviation and spread between the minimum and maximum is quite high. It should be noted that the Texas data are based on expenditures, not prices, as was the case in California. Table 2.8 shows the summary statistics for the average cost per FTE in Texas between 2000-01 and 2004-05.

Table 2.8: Summary Statistics for Dependent Variables – Texas

	Avg Cost/FTE
Mean	2,482
Standard Deviation	936
Minimum	338
Maximum	7,332

The OLS regression results for Equation 2.10 are shown in Table 2.9. As in California, the positive and highly statistically significant estimated coefficient on the time variable indicates that healthcare expenditures are growing through time. In Texas, urban districts have a higher expenditure per FTE for healthcare. One possible explanation is that the large presence of the TRS health plan has resulted in a less competitive health insurance market in Texas.[29] The data from Texas confirm the findings from the nationwide HLM and the model for California: those districts in the statewide health benefits plan have lower healthcare expenditures per FTE. The estimated effect of offering the statewide plan in Texas is far less dramatic than it was in California, saving on average only about $72 per employee per year. Nevertheless, it is statistically significant at the 95 percent level.

There was a policy change in Texas during the five years of this study that resulted in a large number of school districts offering the TRS plan after 2002. The fact that this policy was implemented during the period covered by this study allows an additional analysis that is not possible with the California data. By including a dummy variable for LEAID in Equation 2.10, the regression compares the growth in healthcare expenditure per FTE within each school district.[30] The regression shown in Table 2.9 groups together all districts in the TRS plan and compares them to districts not in the TRS plan by year. With the district-level dummy variables, Table 2.10 shows the estimated coefficients for a regression that compares the growth in healthcare expenditure within each district year by year. The subtle difference is that Table 2.10 has the quality of a natural experiment: the estimated coefficient on the pool dummy variable in Table

[29] Approximately 11 percent of the districts in California belonged to the state plan in 2005, whereas in Texas, that proportion was over 84 percent.
[30] The "areg" command in Stata.

2.10 is the average effect across all districts comparing before and after they join the TRS health plan. Interestingly, the estimated coefficient is now $292 per FTE and the t-statistic is 12.04. Moreover, the R^2 statistic is 0.798, which is more in line with what you would expect from a time-series analysis.

Table 2.9: Pooled OLS Regression Results for Texas

Dependent variable→ ↓Independent variables	Avg Cost/FTE
constant	1,075
	(20.000)
Urban Dummy	280.4***
	(9.652)
Instructional Expenditure/Pupil	0.192***
	(18.998)
Statewide Pool Dummy	-71.8**
	(-2.043)
Time	220.5***
	(18.111)
n	5,066
R^2	0.173

* p<0.10 ** p<0.05 ***p<0.01 (t-statistics in parentheses)

Table 2.10: OLS Regression Results for Texas with District-Level Dummy Variables

Dependent variable→ ↓Independent variables	Avg Cost/FTE
constant	1007.4
	(12.55)
Urban Dummy	151.7***
	(3.87)
Instructional Expenditure/Pupil	0.216***
	(12.63)
Statewide Pool Dummy	292.3***
	(12.04)
Time	126.6***
	(16.20)
n	5,066
R^2	0.798

* p<0.10 ** p<0.05 ***p<0.01 (t-statistics in parentheses)

Conclusions

This study began with the observation that school districts are experiencing large increases in expenditure for employee benefits. The Kaiser Family Foundation study shown in Figure 2.1 suggests that health insurance premiums are a significant reason for the above average growth in benefit costs. The responses available to policymakers regarding school employee benefit decisions are limited by the collective bargaining arrangements in many states and the public nature of salary and benefit negotiations nationwide. One widely touted solution is the implementation of a statewide health insurance plan, either exclusively for school employees or the merging of school employees into an existing health plan with other state employees.

This study attempts to fill a void in the research regarding the large increases in cost of providing health insurance to school district employees. The first research question probes the extent to which rising healthcare costs are negatively affecting school employees. Aggregating state-level data from NCES, Table 2.1 and the graphs in Figures 2.2 and 2.3 give a heuristic exposition of the trends in compensation and employee benefits. First, salaries for all employees are growing more slowly than total expenditure while benefit expenditure is growing at a higher rate. As a result, the ratio of benefits to compensation has been increasing steadily since 2000 for both instructional and non-instructional personnel. Second, the ratio of compensation to expenditure is falling for all employees, but it is falling faster for instructional personnel. Finally, the general equilibrium effects are mixed: pupil-teacher ratios are getting smaller and expenditure for student support services are growing at a higher rate than total expenditure; at the same time, expenditures for other non-instructional services are

growing at much lower rates that overall expenditure. In the end, the impact of rapidly increasing health insurance rates has been a slower growth in salaries and some reduction in non-instructional services.

The second research question is more substantive and investigates what can be done to rein in rising healthcare costs for school district employees. One proposed solution is a statewide health insurance plan. Unfortunately, health insurance claims data are within the private domain of health insurers, so a detailed analysis of healthcare claims is not possible. Without claims data, the second best solution is to look at premium expenditure by school districts. Over any substantial length of time, one would expect a strong correlation between premiums and claims. This study employed a three-level HLM and showed that school districts that offered a statewide health insurance plan to their employees did indeed experience slower growth in employee benefit costs.

The biggest data problem in this study was having healthcare expenditure grouped with other employee benefits. Moreover, by including a variety of variables at the third level of the HLM and estimating each model, it became clear that there were simply too few observations at the state level to control for pension contributions. In the end, the models included only the policy variable—a dummy variable for the five states that have a strong incentive to joint the statewide plan—in the third level of the HLM. In all cases the policy variable had the appropriate sign to suggest that a statewide policy does reduce healthcare expenditures, but it was not statistically significant. In contrast, the district-level dummy variable, which was set to one for districts that offered a statewide health plan—whether or not the state had a policy encouraging them to do so—had a negative estimated coefficient and was statistically significant in all models.

The analysis estimated models for a variety of dependent variables in order to provide the most compelling argument in light of the lack of explicit health claims data. For the three dependent variables—benefit expenditure per FTE, the ratio of benefits to compensation for employees involved in instruction, and the ratio of benefits to compensation for all employees—there was a negative and statistically significant impact of membership in a statewide health plan. The fact that these results obtain across three slightly different cases should strengthen the argument that statewide health plans slowed the growth in benefit costs.

The benefit of the HLM was that it comprised all 50 states and the District of Columbia for five years. Unfortunately, the HLM was hampered by the fact that the NCES data do not separate health insurance from other employee benefits. In order to reinforce the conclusions of the HLM, The final analysis in this study looked at California and Texas, two states that provide detailed health insurance data and accurate FTE counts for multiple years. The California model showed that the districts that offered the CalPERS health plan to employees had slower growth in health insurance rates. In addition, the employer contributions for those districts grew at a slower rate, but it appears that this was partly due to the ability of those districts to push some of the cost of premium increases onto the employees.

In Texas the data contained expenditure for health and life insurance[31] and the results show the negative estimated effect of a district's membership in the TRS health plan on the growth of health insurance expenditures. Including a dummy variable for each school district quadrupled the magnitude of the estimated coefficient and made it a

[31] Life insurance is a small portion of this sum and life insurance premiums grow at a fairly slow, stable rate.

great deal more statistically significant. It also reversed the sign, raising the question of selection bias. The pooled OLS analysis showed that in any given year, those districts that belonged to the TRS health plan had lower expenditures for healthcare per FTE. But when the analysis was run with a school-district dummy variable, the coefficient on the health insurance pool dummy variable now had a positive estimated coefficient. Within the framework of a natural experiment, that suggests that the growth rate of a district's per-FTE expenditure for healthcare went up after they joined the TRS plan.

There could be some selection bias leading to this result if the districts that joined the TRS plan had a higher trend in healthcare expenditure before the plan was available than those districts that chose not to join. The bias would arise if selection into the pool was somehow based on the *trends* in healthcare expenditure, because any selection into the pool based on the *level* of healthcare expenditure would be accounted for by the district-level dummy variables. The fact that the estimated coefficient on the dummy variable for membership in the TRS health plan was negative in the pooled OLS regression while it was positive in the presence of a district-level dummy variable is consistent with a situation where the districts that joined the plan were at a lower level of expenditure yet made their decision to joint the TRS plan because they were experiencing a higher growth trend in healthcare expenditure.

This analysis has proceeded in three steps. First, the countrywide data show that school districts have felt the impact of rising healthcare costs. Second, the three-level HLM shows that those districts that belong to a statewide health insurance pool experience slower growth in employee benefit expenditure, a large portion of which cover health insurance. Finally, an analysis of two states with publicly available detailed

financial data showed that school districts that belonged to a statewide health plan in those states had slower increases in expenditure explicitly for health insurance in aggregate.

APPENDIX 2.1

Constructing the Level 1 Database

The school district data came from two sources at the NCES: the school district financial data (F-33) and the Common Core of Data, Local Education Agency Universe Survey. Once the two files were joined for each year, there were a number of edits to the original data. First, I selected only records with an Agency Charter Code (AGCHRT) equal to 2 (all associated schools are charter and noncharter schools) or 3 (all associated schools are noncharter schools). Second, I selected only those LEAs where the fall membership was greater than zero. Third, I chose only records where the Type of Agency was equal to 1 (local school district that is not a component of a supervisory union) or 2 (local school district component of a supervisory union sharing a superintendent and administrative services with other local school districts). These edits resulted in a collection of data containing 69,555 level-1 records.

Further edits were needed because all of the components of the four dependent variables enumerated above were not available for every LEA record or they contained a flag value, which threw the calculations off (e.g., -1). As a result, I copied the level-1 data into four separate files and eliminated records that were incomplete. Each of the four level-1 datasets corresponds to the three scenarios of the HLM.

1) The *instructional benefits per teacher* variable is dependent on benefits for instruction and total teacher counts. I eliminated all records that were either zero, blank, or set to a flag value (e.g., -1) for one or both of these variables.

APPENDIX 2.1

Constructing the Level 1 Database - Continued

Edits were made to correct errors in *benefits for instruction* (24 records eliminated) and *total teacher FTEs* (1,467 records eliminated). I eliminated records where the district-wide pupil-teacher ratio was greater than or equal to 40 (62 records eliminated). The final level 1 database for Scenario 1 contained 68,002 records. Montana and Nebraska had numerous records where the benefits per teacher variable was clustered at exact thousand dollar increments (e.g., $3,000, $4,000, etc.), suggesting some manipulation of the data. Those records were left in the dataset.

2) I eliminated all records where the employee benefits for instruction were zero (24 records eliminated). Second, I eliminated one record where the salary for instruction was zero (1 record eliminated). Third, I created a variable that showed the ratio of total benefits to total compensation divided by the ratio of instructional benefits to instructional compensation. I eliminated records where this ratio was greater than two (40 records eliminated) in order to eliminate likely miscoding of the benefits for instruction variable. The final level 1 database for Scenario 2 contained 69,490 records.

3) I eliminated records where total employee benefits were equal to zero (14 records). The final level 1 database for Scenario 3 contained 69,541 records.

APPENDIX 2.2

Variables in the Datasets

HLM - Level 1

Variable Name	Description
STATEID	Federal State Number
LEAIDDST	School district
CENSUSID	From U.S. Census Bureau
LOCALSTID	State's internal ID code
STNAME	State Name
IBENCOMP	Benefits for instruction divided by compensation for instruction
BEN_TCHR	Benefits for instruction divided by teacher FTEs
TBENCOMP	Total benefits divided by total compensation
ICMPTCMP	Compensation for instruction divided by total compensation
AGCHRT	Agency Charter-selected codes 2&3
YEAR	Year of data
CCDNF	Does the LEA match in both the financial data and the nonfiscal data?
TYPE	NCES code for type of agency (1&2 should be relevant)
URBAN	Dummy variable for urban districts
V33	Fall student membership
TEACH_PR	FTEs for classroom teachers in the previous year
TEACH	FTEs for classroom teachers in the current year
TOTTCH_PR	FTEs for all teachers in the previous year
TOTTCH	FTEs for all teachers in the current year
TOTALREV	Total revenue
TOTALEXP	Total expenditure
TCURELSC	Total current expenditure for elementary and secondary education
TCURINST	Total current expenditure for instruction
INSTR/PUPIL	Instructional expenditure per pupil
Z32	Total salaries
Z33	Salaries for instruction
Z34_pr	Total employee benefits for the previous year
Z34	Total employee benefits for the current year
V10_pr	Employee benefits for the previous year
V10	Employee benefits for the current year
Cmp_Inst	Compensation for instruction
Comp	Total compensation
POOL	Is the LEA in a statewide health insurance pool?
TIME	Year minus 2001
T_IRatio	The ratio of benefits for all uses to benefits for instruction

APPENDIX 2.2

Variables in the Datasets - Continued

HLM - Level 2

Variable Name	Description
STATEID	Federal State Number
LEAID	School district
LEA_Name	Name of LEA
Unemployment	Unemployment rate for LEA from the 2000 U.S.Census
Poverty	Poverty rate for LEA from the 2000 U.S.Census

HLM - Level 3

Variable Name	Description
STATEID	Federal State Number
STABR	Two-letter state abreviation
AvgAge	Average age of teachers in state from SASS
AvgExper	Average experience of teachers in state from SASS
AvgSal	Average salary of teachers in state from SASS
se_age	Standard error of average age
se_exper	Standard error of average experience
se_sal	Standard error of average salary
UnionPct	The percentage of teachers in the state who belong to a union (from teachersunionexposed.com)
Y2003	Average health insurance premium in state for 2003 (from the Medical Expenditures Panel Survey, from HHS)
Y2005	Average health insurance premium in state for 2005 (from the Medical Expenditures Panel Survey, from HHS)
growth	Average growth of insurance premiums between 2003 and 2005
idx_2005	An index of each states health insurance premiums in 2005 relative to the lowest state that year
IdxGrowth	An index of each state's health insurance premiums growth rate relative to the state with the lowest growth rate
STATE_INCENTIVE	Does the state have a strong incentive to join the statewide health insurance pool?

APPENDIX 2.2

Variables in the Datasets - Continued

OLS – California

Variable Name	Description
...	All HLM level 1 variables
Cost_FTE	District-wide average health insurance cost per FTE
ERContrib_FTE	District-wide average employer contribution per FTE
EE_Contrib	District-wide average employee contribution

OLS – Texas

Variable Name	Description
...	All HLM level 1 variables
HealthFTE	District-wide health insurance expenditure per FTE

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CHAPTER 3

REFUGEE EDUCATION: A CASE STUDY IN THE CHOICE OF POLICY INSTRUMENTS AND INSTITUTIONS

Introduction

The purpose of this essay is to provide a theoretical analysis of the complicated and seemingly intractable problem of educating refugees in their country of asylum. This analysis will proceed along three dimensions: First, it will look at the choice of policy instruments in the unique circumstances that surround refugees. Second, it will describe the problems associated with choosing the institutions best able to implement education policies for refugees. Third, using a framework developed by Gutmann (1999), it will show how educating refugees often brings competing interests into conflict over exercising their authority. Finally, the paper will make use of analogy, drawing upon the literature covering United Nations and Non-Governmental Organization (NGO) projects to provide a detailed case study based on historical analogy in the vein of Neustadt and May (1986).

Background

Every year thousands of political refugees leave their countries of origin to seek asylum in neighboring countries. Their flight is often prompted by violence resulting from ethnic persecution or internecine political struggles. Many of these refugees settle in refugee camps set up under the auspices of the United Nations and their stays in these camps can be long, often spanning many years. Together the United Nations High Commission for Refugees (UNHCR) and the United Nations Children's Fund (UNICEF)

are taking an active role in educating the children in refugee camps, paying special attention to their unique needs.

The United Nations defines refugees as those who have a "well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion" in their country of origin (1951 UN Convention Relating to the Status of Refugees). The UNHCR estimated 17.1 million people were in their worldwide population of concern at the end of 2003. Of those, 9.7 million were refugees and 4.2 million of the refugees were children under the age of 18 (UNHCR, 2003).

Land is a scarce resource in developing countries, so refugee camps are often set up on the least productive land in countries of asylum. Here is a description of Kenya's two largest refugee camps, Kakuma and Dadaab (containing 84,553 and 132,000 people, respectively in 2002):

> They are two of the most inhospitable areas for human habitation and almost no one among Kenya's southern city dwellers and agriculturalists has ever been there. They are far from the concerns of mainstream political, social, and economic development. The areas could be described as geo-politically hostile environments (UNHCR, 2002).

The refugees enter these camps because they typically have no legal standing in the country of asylum, exposing them to harassment, incarceration, and extortion from local police. In addition to the persecution that precipitates their flight, life in the camps can be violent. Refugees face hostility from locals, bandits, and other refugees. Once

again, looking at Kakuma and Dadaab:

> Crime statistics in and around camps reached a peak in the mid-late 1990s. They included armed banditry in the camps, cattle raiding on the periphery of the camps and repeated incidents of sexual and gender-based violence, and theft. Camp/police reports listed: murder, manslaughter, rape, shooting, inter-clan fighting, assault, abduction, arson, strikes and strike threats, rioting, theft, accidents and substance abuse (UNHCR, 2002).

Children in refugee camps have been identified as "the most explosive segment" of a population in conflict-related situations (Ratamal and Devadoss, 1998; Sommers, 2002). Sommers (2002) states:

> In the highly influential report prepared by Graça Machel on children in armed conflict, education for forced migrant adolescents is recognized as "particularly effective in assisting [their] psychosocial wellbeing" and "keeping them out of military service" (Machel, 1996). In addition to military recruitment, this population is also considered "at high risk of prostitution, indoctrination...and criminality" (UNHCR, 1997).

Mandating that refugees have access to education and providing it are two very different things. Refugee crises are usually associated with poverty and often the country of asylum is as poor as the country of origin. The refugee education sector must compete

for scarce resources with the more immediate needs of food, water, shelter, and healthcare. The uncertain length of the refugees' stay further complicates the situation for education planners (Appadu and Retamal, 1998). There are additional problems that arise from child labor exploitation and gender bias in and around the camps.

In rare cases, the violence in the country of origin can spill over into the formal education sector. The situation in Rwanda was a particularly severe example. The government had no resources after the crisis; school personnel had been involved in the massacre and school buildings were used by troops, even as places of slaughter; children were disproportionately represented among the victims, necessitating further care for the child survivors; and the education system itself was implicated in contributing to the moral climate of the country (Aguilar and Richmond, 1998).

Research Questions

This paper will investigate the following two questions: (1) Which policy instruments are best suited to improve the education of refugees in their country of asylum? (2) Which institutions are most able to carry out those policies? The research methodology will include a description of the unique environment faced by most refugees and show how traditional policy instruments and institutions often do not have the intended results due, in part, to competing stakeholders. The policy goals underlying this analysis are access, educational quality and socialization. Turning to a more concrete example, the paper will then employ historical evidence and use analogies to develop a case study of a protracted refugee crisis in Ngara, Tanzania.

The Problem

According to 2003 estimates, only 59 percent of children in sub-Saharan Africa are in school, and the majority of them are boys. A third of these students will drop out before the fifth grade, and those who stay fare poorly on standardized tests. "No country in the world has achieved sustained economic growth without first achieving at least an average of five to six years of basic education among adults" (UNHCR, 2003). In addition to the problems that children in developing countries face, refugees must deal with the additional burdens of violence, low educational quality, an uncertain future, and social adjustment in a new environment.

Gender bias is a significant problem in refugee education. The makeup of the camps is often heavily biased toward males. The Kakuma camp in Kenya is only 38 percent female, owing largely to males' greater ability to flee and the fact that girls are often conscripted into domestic service or marriage (UNHCR, 2002). Based on estimates in 2000, of the more than 130 million 6- to 11-year-old children not in school, nearly 60 percent are girls. By age 18, girls have, on average, received 4.4 years less education than boys (UNICEF, 2000a). Many factors affect the enrollment of girls: domestic duties, religious beliefs, girls' security and the risk of early pregnancy (Sinclair, 1998). In Guinea, the enrollment rates for girls increased 17 percent and retention rates increased 20 percent from 1997 to 2002 following improvements in sanitation, which included the construction of separate latrines for girls (UNHCR, 2003).

In addition to the accessibility of education, refugees often face a problem of educational quality—both the quality of the educational inputs and the quality of the teachers in the camps.

> Quality is measured by the extent to which students attain the knowledge, skills and behaviors specified in the national curriculum. It includes cognitive, affective and social outcomes, with an expectation of positive results. In African countries, however, the essential ingredients for quality education are often lacking. Supplies of textbooks are uneven, and those that are available are typically shared. In a third of these countries, only half the teachers are trained. An average of 70 pupils to a classroom is commonplace (UNHCR, 2003).

The curriculum is an often-ignored problem in developing countries. The curriculum in the country of asylum is frequently taken from the former colonial regime and the expectations can be overly ambitious and transitions between topics can be disjointed. The availability of books has been tied to successful learning, yet book shortages are common (Lockheed, 1990). The language of instruction is an important policy decision that will affect people from textbook publishers to students who wish to study overseas (Coombs, 1985; Preston, 1991). Children who receive lessons in their mother tongue tend to complete more grades and drop out less than other children (UNHCR, 2003).

Two of the more immediate problems that affect refugees are often psychological trauma and concern for the health of other family members (Williams, 2002). Refugee children are forced to leave their country of origin; their education is interrupted; and their families are often broken up en route. To help refugee children deal with violent

trauma and its aftermath, the UN is involved in peace education.

The Structure and Function of Education Policy

A refugee education policy aims to re-acclimate the children to an educational setting, providing them the intellectual and social tools they will need to become functioning members of their society of durable solution. The policy needs to accommodate the educational neglect the children will most likely have faced and their emotionally traumatic and often violent flight from their country of origin. Critical to the success of the policy is parental and/or caregiver support. The program has to be seen as beneficial, not as a requirement passed down from the donors with little practical value.

A key to the success of any refugee education policy is the motivation of the refugees themselves. Brown (2002) gives four mechanisms for motivating refugees to participate fully in their education programs: responsibility, achievement, recognition, and advancement. These apply equally to students and to teachers and across most, if not all, policies. Sommers (2002) lists the following program objectives of peace education policy: communication, appropriate assertiveness, cooperation, critical thinking, and conflict resolution. He goes on to include the understanding of peace and conflict, justice, human rights and responsibilities, gender issues, and interdependence as key goals. Finally, he advocates that the policy promote self-respect and respect of others, trust, social responsibility, open-mindedness, and tolerance.

In addition to motivating the refugees, choosing the language of instruction is an important decision for education policymakers. The level at which refugee children perform in school is related to how well they use the medium of instruction. In cases of

prolonged stays in a country of asylum, host country teachers can be employed if they speak a common language. This has the added benefits of preventing refugee teachers from furthering political causes in the camps and providing jobs to host country teachers, thereby easing tensions between refugees and the indigenous population (Preston, 1991).

To gear the education of refugees toward ultimate repatriation instead of assimilation, it is important to use teachers and curricula from the country of origin aimed at taking examinations from that country. Using the vernacular in the early grades is also helpful (Smawfield, 1998). Unfortunately, this has the effect of keeping refugees on the social periphery of the host country. Moreover, education received in exile may not be recognized after repatriation (Preston, 1991).

A significant number of refugees will neither be repatriated to their country of origin nor assimilated into their country of asylum; rather, they will be resettled to a third country, generally a developed country that grants asylum to political refugees. It is interesting to note that the socio-economic status of refugee families prior to exile is correlated with their school performance after resettlement. In fact, neither flight nor subsequent formal education significantly alters the previously established education patterns. For example, a high proportion of Vietnamese refugees in the U.S. had post-secondary education, while most Hmong did not (Walker, 1988, cited in Preston, 1991).

After the crises, it is critically important to reintegrate youth, soldiers, and even guerillas into society. But there is a risk that in the rush to restore normalcy, institutions arise too quickly. "The establishment of participatory processes from the crisis period forward can help to ensure that institutions leverage co-operatively for their mutual self-interest" (Vargas-Baron and McClure, 1998). Finally, any refugee education policy must

strive to be as inclusive as possible and not neglect the most marginalized or even violent members of the refugee community.

The Difficulties in Refugee Education Policymaking

The goals of the policy are access, educational quality, and socialization. The measurable outcomes are large and equal enrollment for both genders, literacy, and reduced violence. There will be a significant amount of variability on these measures depending on the culture of the country of origin and the country of asylum. The success of implementing a program will depend largely on the financial commitment of the donors and the reception the camps' refugees receive from the host country.

Setting up a school system inside a refugee camp poses some unique problems for policymakers. There are problems with management, authority, hiring, curriculum, and pedagogy as in any school system. Teacher recruitment is difficult because there may be no one capable of teaching, qualified teachers may be reluctant to participate, teachers may lack leadership skills, they may be isolated from the camp leadership, they may be too involved with their own families to teach, and the educational uncertainties inherent in refugee life may leave them unmotivated to teach (Preston, 1991). Moreover, it is not always clear what the language of instruction should be and there may even be subversive elements in the camp that undermine efforts to educate the children (e.g., war criminals).

There needs to be a delicate balance between devoting resources to the camp while not aggravating the host country nationals, who themselves are often poor and may feel marginalized. The large size of the camps is an important factor in allocating resources and the technical capacity of the host country to assimilate educational

development aid may be inadequate. The host country may also be reluctant to accept aid due to a lack of familiarity with donor organizations—as was the case with post-apartheid South Africa—or an unwillingness to open primary schools up to outsiders, as happened in India (Tilak, 1999). The desire to offer refugees an education does not always translate into a willingness to work with outsiders toward that end.

Attempts to educate children in the camps can have unanticipated consequences. The refugee camps in Uganda drew non-refugee Sudanese children who thought they could attend the secondary schools, further burdening the system in place (Sesnan, 1998). By hiring teachers from within the camps, the system tends to reward those who come from the more advantaged segments of the society (Preston, 1991). The result is that society within the camps tends to reproduce the society in the country of origin. This is often disconcerting to the disadvantaged groups, who may resent an education system dominated by the ethnic group that oppressed them.

In situations of resettlement to developed countries, different problems arise. Refugees often drop out of school due to financial needs, or in the case of girls, due to early marriage. In Canada, refugee parents are leery of standardized assessment, fearing that their children will be tracked into lower-ability classes and marginalized (Kaprielian-Churchill and Churchill, 1994).

Peace education programs were often pushed aside because of their non-academic nature. In countries that had national examination that were used to gauge educational quality, both parents and teaches were reluctant to alter existing curricula or reform pedagogy to include peace education. Moreover, peace education is potentially more controversial than the accessibility issues that surround the goal of universal access to

quality education. Peace education is a program that explicitly incorporates values into the education process and values may not be shared by all of the actors involved in refugee education.

A refugee camp in Nepal highlights the coexistence of positive and negative results of a refugee education program. On the up side, Brown (2002) describes the positive results of the refugee education program that included a better understanding of the value of girls' education, which led to almost universal enrollment of refugee girls. In addition, the caste system fell out of favor as all castes became united in their suffering within the camps. Finally, students became more open and began asking more questions in class. Unfortunately, there were also some problems with the program. Protracted stays in the camp sapped motivation and morale. Growth in student enrollment overburdened the education system while the focus on universal primary education left many students with nowhere to go after matriculating. Teachers' salaries failed to keep pace with inflation, so teachers had low incentives to work hard. In addition, teachers were unable to obtain a recognized teacher certification, further lowering their morale. The result was increased teacher absenteeism (Brown, 2002).

A Philosophical Foundation for Educational Authority

In order to examine the role that values play in refugee education, it is important to first determine who has the authority to make decisions regarding the education of refugee children. In her book, *Democratic Education*, Amy Gutmann (1999) develops a useful paradigm with which to analyze the interplay between three actors who exert authority over education: the State, the family, and professional caregivers. Gutmann's

analysis may seem out of place—refugees rarely flee a functioning democratic state. In the case of African refugees, they frequently do not even seek refuge in one. Nevertheless, her analysis is useful in highlighting how these three actors interact and on what basis they claim their authority. What complicates the education of refugees is that one or more of these actors may be absent or incapable of fulfilling their role.

To the refugees themselves, the concept of a State is far less important than survival. The notion of sovereignty is no more relevant to them than the borders that they cross with relative ease. But in the role of providing an education, the State in question is usually the country of asylum.[32] Gutmann traces the notion of the 'family state' back to Plato. The family state claims exclusive educational authority as a means to establish a harmony between individual and social good based on knowledge. Moreover, citizens are taught that they cannot realize their own good except by contributing to the social good. Under this theory, the state is obliged to claim absolute authority over the education of children in order to avoid internal disharmony (p.23). The notion of the family state underlies the host country governments' keeping refugees in camps in the first place. They frequently cite security, environmental degradation, and sovereignty as justifications for segregating refugees from the indigenous population (Sommers, 2000). Regarding education within the camps, host country governments are often leery of education programs that either exceed the quality of local schools or create incentives for refugees to stay longer than they would otherwise (Sommers, 2002a).

Gutmann attributes the 'state of families' to John Locke, who argued that parents are the best protectors of their children's future interests (p.28). Thomas Aquinas

[32] In cases of repatriation, the country of origin does have some authority in officially recognizing the education that refugees received in another country, for example.

suggested that parents have a natural right to educational authority. Modern libertarians argue that the state must cede educational authority to parents in order to guarantee individuals the right to pass on their way of life to their children (p.29). Gutmann points out that this argument relies critically on the ability of the parents pursue their children's best interests. In refugee camps, the parents themselves—if they are present—are dependent upon international aid organizations for food, water, firewood, and shelter. To assume that these parents can make the best decisions regarding their children's education is often unfounded. Nevertheless, families in refugee camps do pass their way of life on to their children and their claim to authority cannot be ignored. Nowhere is this more apparent than in the education of girls, whose attendance in refugee schools lags behind boys precisely because of the influence of families.

Finally, Gutmann attributes the notion of a 'state of individuals' to John Mills (p.33). In response to the weaknesses of the family state and the state of families, this theory has the dual goals of allowing the opportunity for children to choose the best life possible while offering neutrality in their conceptions of the good life. Even in a functioning democracy, neither parents nor states are capable of providing neutrality. In the case of refugees, they are usually fleeing a failed state (Somalia), a predatory state (Sudan), or a police state (Ethiopia). The schools in Rwanda before the conflict in 1994 were notorious for indoctrinating students with ethnic propaganda (Gourevitch, 1998; Bird, 2003). In a democracy, neutrality is the goal of professional educators who are supposed to eschew bias in teaching children various conceptions of the good life. In refugee camps, the international relief workers who organize the schools and hire the

teachers aim to teach children neutral values with regard to ethnicity, gender, political affiliation and religion.

In reconciling the three competing claims on educational authority, Gutmann proffers what she calls a 'democratic state of education'. A democratic state of education balances the competing interests of citizens, parents, and professional educators through a democratic process that articulates theories and allows citizens to debate the merits and policy implications of each theory. "A democratic state is therefore committed to allocating educational authority in such a way as to provide its members with an education adequate to participating in democratic politics, to choosing among (a limited range of) good lives, and to sharing in the several sub-communities, such as families, that impart identity to the lives of its citizens" (p.42). Once educational authority has been established, the education itself should "aid children in developing the capacity to understand and to evaluate competing conceptions of the good life and good society" (p.44).

In order to foster the value of critical deliberation, Gutmann proposes two "principled limits on political and parental authority over education" (p.44). The first limit is *nonrepression*, which prevents any group from using education to restrict rational deliberation of competing ideas. Adults are free to deliberate and disagree, but they are not free to use education to restrict their children's ability to deliberate and disagree in the future. The second limit on democratic authority is *nondiscrimination*, which requires the education of all educable children. Gutmann (1999) states:

> Like the family state, a democratic state of education tries to teach virtue—not the virtue of the family state (power

> based upon knowledge), but what might best be called democratic virtue: the ability to deliberate, and hence to participate in conscious social reproduction. Like the state of families, a democratic state upholds a degree of parental authority over education, resisting the strong communitarian view that children are creatures of the state. But in recognizing that children are future citizens, the democratic state resists the view, implicit in the state of families, that children are creatures of their parents. Like the state of individuals, a democratic state defends a degree of professional authority over education—not on grounds of liberal neutrality, but to the extent necessary to provide children with the capacity to evaluate those ways of life most favored by parental and political authorities (p.46).

Of course, refugees do not live in functioning democracies. Nevertheless, policymakers in charge of refugee camps represent an international super-democracy, to the extent that the United Nations accurately reflects the outcomes of democratic deliberations of the competing interests of its member states. And in that role, it falls upon the policymakers in charge of refugee camps to acknowledge and resolve the conflicting interests of stakeholders in the education of refugee children in the absence of local democratic deliberation. The UN conventions have focused pragmatically on the state of individuals in protecting the rights of children. There may not be a functioning state, capable parents, or a deliberative democracy to inform education policymaking, but

refugee children are the one element always present in the camps. As a result, the 1989 Convention of the Rights of the Child focuses on a child's access to a relevant, high-quality education (Nicolai, 2003). It is when governments and parents exercise their authority that educational policymakers in the camps run into resistance and unintended consequences.

Policy Instruments

In their paper, "Getting the Job Done: Alternative Policy Instruments," Lorraine McDonnell and Richard Elmore lay out an analytical framework comprised of alternative policy instruments that "translate substantive policy goals...into concrete actions." These instruments include mandates, inducements, capacity-building, and system-changing. More recently, in her book *Politics, Persuasion, and Educational Testing*, McDonnell (2004) added hortatory policy to the previous four. Together, these five policy instruments provide a useful framework with which to analyze refugee education.

Mandates are legal instruments designed to elicit compliance. Inducements are typically financial grants meant to produce a specified behavior in the recipient individuals or agency. Capacity-building is a longer-term investment that aims to improve the resources and skills that are either lacking or nonexistent. System-changing involves a transfer of authority in order to improve the delivery of educational services. Hortatory policies focus on the beliefs and values of the target individuals and rely on persuasion to elicit desired behaviors.

The traditional policy instruments of mandates and inducements are often ineffective in dealing with refugees in developing countries. As signatories to the various

UN conventions, developing countries either ignored or severely underestimated their capacities and resources. They may also have assumed that they would only be held responsible for their own citizens. In addition, refugee problems are beyond the control of the countries of asylum, resulting in the inadequate provision of education to refugees when a crisis occurs. Most would agree with the UN's assumption that education is a fundamental human right. It is incumbent upon the UN and the international financial institutions to expand the use of capacity-building and hortatory policy instruments to provide education to refugees in countries of asylum that lack the capacity and political will to educate large influxes of asylum-seekers.

As a policy problem, refugee education is founded on the belief that education is a basic human right for all children yet the statistics cited above highlight the problem that refugee education is gender biased, of low quality, and often ignores peace education. The normative side of the policy problem posits that refugee education needs to be brought up to at least the level provided to citizens of the country of asylum. There is also the countervailing problem of well-funded humanitarian organizations focusing solely on the refugees and elevating their education system above the one in the host country. Striking a balance requires a broad perspective and feedback from refugees and host country officials.

Refugee problems have an extralegal aura about them because the refugees themselves are without a country, and they often have no possessions, identification, or other documents like birth certificates. Nevertheless, their situation is prescribed by international law. Driven by practical considerations and in light of the failed States and broken families that so often surround refugee children, access to education has been

identified as a fundamental human right by the United Nations. In Gutmann's framework, this is a clear nod in the direction of 'the state of individuals'. Article 22 of the 1951 Convention relating to the Status of Refugees states that refugees should receive "the same treatment as is accorded to nationals with respect to elementary education." Article 28 of the United Nations' 1989 Convention on the Rights of the Child (CRC) expanded this when it stated, "Each child has the right to education" and this applies to refugees because "all CRC rights are to be granted to all persons under 18 years of age (Article 1) without discrimination of any kind (Article 2)" (CRC, 1989; Machel, 1996; Sommers, 2002).

Given the poor fiscal states of many countries of asylum, the international laws prescribing the education of refugees can be viewed akin to unfunded mandates. In order to help the governments in the countries of asylum to educate refugees, UN agencies provide inducements to the host governments. These inducements include feeding, housing, and often providing security for refugees. In addition, UN agencies generally fund the recruitment of teachers, the building of schools, and the provision of educational materials.

The provision of quality refugee education requires assistance above and beyond inducements. Teacher quality is a policy problem that requires capacity-building. Teachers are recruited from among the refugees because (a) host-country nationals refuse to work in the camps, (b) there are often language barriers, and (c) they are cheaper. Developing countries generally have fairly low educational requirements for primary school teachers, so policies that increase teachers' knowledge of their subject matter, improve their pedagogical skills, and motivate them will improve the education system,

particularly at the primary level.

> [A] great weakness in refugee camps can be the lack of trained, qualified and experienced teachers. Volunteer "teachers" recruited at the beginning of a refugee emergency are "unleashed" on the children even though they are often under-educated, untrained, and inexperienced. Their only qualifications are motivation and commitment (Williams, 2002).

The agent chiefly responsible for education in developing countries is usually the government, but these governments rarely have the capacity to assume the educational responsibilities for refugees. System-changing in these cases involves the host country relegating the education of refugees to the UN and its associated agencies. "Signatories to the Geneva Convention and Protocol, if they do not reserve clause 22, are agreeing to the provision of primary schooling for 'convention refugees', such as is made available to the citizen population" (Preston, 1991). After the Convention on the Rights of the Child, they are also agreeing to provide secondary education as well. The results are typically schools set up in the refugee camps that are run by the refugees themselves on limited budgets with the help of outside organizations, often funded by UNHCR (Williams, 2002).

> Many kinds of education provision are found in camps and other places of asylum. Their funding and administration are differentiated by the designated status, age and settlement expectations of recipients. They are also

affected by camp administrative requirements, in particular, by host government and agency objectives and by the need to ensure structured activities for residents (Preston, 1991).

Access, educational quality, and socialization are policy problems that are best dealt with through hortatory policies aimed at parents, teachers, administrators, and donors. Hortatory policies rely on four causal assumptions for their success:

- "The information expected under the policy is produced and is understandable to its target audiences.
- The values appealed to are sufficiently strong and broadly accepted so as to prompt widespread action.
- Targets have sufficient incentive and capacity to respond.
- Targets' response will be consistent with the policy's goals" (McDonnell, 2004).

The three policy goals meet these requirements *a priori*. Convincing parents to education their children, particularly girls, should be a top priority. Research has shown strong correlations between women's education and the health and income of their children. A mother's education had a strong positive effect on male earnings and education attainment in Panama (Heckman, J. and J. Hotz, 1986). T. P. Schultz (1988) found that increased family planning increases the demand for schooling, which may imply that more available schooling can reduce fertility. Schultz also found that increased mothers' schooling leads to a decrease in infant mortality because 1) mother's earnings buy health inputs; 2) education enhances the productivity of her time at home; 3) she improves her allocative efficiency at home. There is evidence that the quality of

children is increasing in developing countries based on increased per capita food consumption, increased proportions of school enrollment, and the increased survival rate of children (Schultz, T.W., 1981). Studies also suggest that fertility rates fall for each additional year of schooling a girl receives (Colclough, 1993).

Turning to quality, Williams (2002) identified the following eight enabling conditions for high quality schools: effective school leadership, capable teaching force, autonomy in school decision-making, order and discipline, positive teacher attitudes, an organized curriculum, incentives for academic success, and maximized learning time in school. Psacharopoulos and Woodhall (1985) list four objectives that are fulfilled by investing in education:

- "It satisfies a basic human need for knowledge, provides a means of helping to meet other basic needs, and helps sustain and accelerate overall development.
- It provides essential skilled manpower for both the industrialized and informal sectors of the economy, provides the means of developing the knowledge, skills, and productive capacities of the labor force, and acts as a catalyst in encouraging modern attitudes and aspirations.
- It helps to determine not only the incomes of the present generation but also the future distribution of income and employment.
- It influences social welfare through its indirect effects on health, fertility, and life expectancy and helps to increase the profitability of other forms of social and physical investment."

Finally, policymakers should try to socialize refugee children in their new environment. Peace education is integral to refugee education as virtually all of the refugees are victims of persecution and violence. "Peace education initiatives tend to teach about how to prevent conflicts before they take place. Its teachers often present overarching peace-related themes to a wide range of students, from school-age children in formal schools to adults in non-formal settings" (Sommers, 2002).

Even though there is a consensus about the underlying values targeted by the hortatory policy, there are implementation problems. Information required by hortatory policies is not always readily available and the country of asylum may have an incentive to hide the poor state of refugee education from the UN for fear of losing funding. Moreover, refugees may be unwilling to complain about inadequacies for fear that they will be ostracized or kicked out (Preston, 1991).

There are also aggregation and interpretation problems regarding the information and its target audience. Hortatory policies regarding refugee education are aimed at parents, teachers, and host-country governments. There is no guarantee that they will use or comprehend the information in the same way. Peace education could be contentious if parents feel their children are being brainwashed against the interest of the ethnic group or clan. McDonnell says, "As a result, the contrasting qualities of hortatory policy are often framed in terms of the blurred boundary between objective information and value-laden interpretations (or even mild forms of propaganda)" (McDonnell, 2004: 32).

Hortatory policies enacted by the UN will tend to have a bias toward Western values. This is particularly true in the case of girls' education. Cultural norms, concerns for safety and modesty, and attitudes towards education in general may make parents

reluctant to enroll their daughters in school. Resistance will be particularly strong in Muslim societies. McDonnell (2004) suggests that in some cases, "policymakers may have to craft their persuasive communications to elicit a strong response from some groups and only tacit consent from others."

In addition to values, there is the problem of cost. In male-dominated societies, girls typically perform the domestic duties. By sending a girl to school, parents must incur the opportunity cost of the child's lost labor. Vijverberg (1995) found that entrepreneurs could economize on the costs of schooling by sending only some of their children to school and still receive higher income from the family enterprise. He offered this as an explanation for why girls receive less education. One way around this might be to highlight competing opportunity costs like the lifetime earnings of daughters, or even an increased bride price for more educated girls. Without the kind of deliberative democracy described by Gutmann (1999) to resolve the conflict between families and the international humanitarian community, policymakers must engage families or they run the risk that parents will keep their children out of school.

McDonnell (2004) notes "hortatory instruments often need capacity-building components if they are to be successful" (p.36). This is particularly true of refugee education, where the countries of asylum often have such low capacity to begin with. "If government lacks the political support or the resources to regulate behavior, a hortatory approach becomes an attractive option" (p.44).

Institutional Choice

Clune (1987) summarizes institutional choice, "Policy decisions aimed at substantive goals frequently also involve a choice of a decisionmaker" (p.117). The two characteristics that are important in picking an institution to make decisions are that they agree on the substantive goals of the educational policy and that they have the capacity to meet those goals (Clune, 1987). With refugee education, the stakeholders described by Gutmann (1999) generally coincide with the institutions involved. These institutions are the government of the host country, families, and the international humanitarian community.

Refugee crises generally result from a breakdown of institutions within the country of origin. The perceived failure of the existing institutions fuels an atmosphere of distrust, making the choice of alternative institutions all the more difficult (Clune, 1987). Moreover, given the fact that the countries of refuge are often struggling to accommodate the needs of their own citizens and the international donor community is seen as distant and foreign, the choice of alternative institutions may be a choice of the least worst option available. Nevertheless, policymakers persist, not because they are so naïve to think that their choices will *solve* problems; only that some marginal improvements might result, in light of failures of existing institutions. Institutional choice is rife with unintended consequences and the choice of new institutions may result in adverse consequences that lead stakeholders to question the relative advantage of the new choice over the old one.

The UN defines education as a basic human right—for girls as well as boys. The host countries and international aid organizations currently bear the financial burden of

educating children in refugee camps, but this policy relies too heavily on the capacities of the countries of asylum. Moreover, these governments have to answer to their constituencies, whose needs may conflict with those of the refugees in their midst. Finally, parents and families are often absent or devastated by the flight from the country of origin lessening their capacity to educate their children. The fact that, as institutions, families and host country governments often lack the capacity and the coincidence of goals to educate refugees means that the choice of a decision maker must be sought elsewhere. Having the resources and knowledge to best meet this challenge, the international humanitarian community is generally the institution of choice.

In refugee situations, the position of the decision-making institution is precarious. On the ground, the actors tasked with carrying out specific policies are the governments of the country of asylum and the caregivers of the children in the refugee camps who are appointed by international relief agencies. In addition to inclusion, refugee education policy should focus on quality, but improving quality will involve many targets. "Research suggests that system-wide improvements in quality can rarely if ever be dictated from outside or above. Instead, strategies must be developed for engaging teachers, and often communities/parents, in the processes of improving quality" (Williams, 2002). Funding from the international financial institutions should be used in the recruitment, training, and retention of high-quality teachers for refugee education. In addition, the physical resources should be made available on an equitable basis to support the education of refugees. Due to the nebulous nature of education quality, attention will often focus on the quantity of educational inputs (Williams, 2002).

Opposition is likely from the host country nationals, envious of the international

aid given to the camps, fearful of a long-term settlement, and skeptical of education for its potential for political subversion. The donors themselves may view refugee education as development aid and not crisis relief, preferring to devote scarce resources to the more immediate needs of the refugees. Finally, the parents may be leery of foreigners educating their children, may want to marry off their daughters to collect a bride price, or may see education as corrupting the cultural values of their shattered country.

Getting an education system in place is no guarantee that the children will accept it.

> Education delays participation in the world of adults and lengthens childhood dependence. This is bitterly resented by many youth. When it does not guarantee employment, education can also raise false expectations among young people (Boyden and Ryder, 1996, quoted in Sommers, 2002).

Funding creates additional problems. While the attention of outside agencies is often warranted and appreciated, "It has been observed administrators have little alternative but to accept terms of assistance that are dictated by resource-providing agencies, with the effect that autochthonous initiatives are weakened" (Preston, 1991). UNHCR's unified budget system makes it difficult for country programs to receive earmarked funds. Instead, the UNHCR representative is supposed to stick to the annual budget ceiling set in Geneva (Brown, 2002). There is also a conflict between donors and administrators about the specific role of education in refugee emergencies. Some donors view education as a development activity and not as relief (Sommers, 2002).

Peace education also contains value conflicts. By focusing on children when their parents may still seek restitution for past persecution, it is possible that peace education drives a wedge between children and their parents. In addition, peace education tends to focus on the individual child while conflicts often appeal to group identity and loyalty. This calls into question the very foundation of peace education. The Western notion of human rights is centered on the individual, which contradicts the non-Western notion of collective rights as human rights. Western cultural bias may hamper efforts to affect behavior in foreign settings. Finally, many of the people who attend peace education classes are the victims of violence, not the perpetrators (Sommers, 2002; Boyden and Ryder, 1996; An-Na'im 1998).

Using Historical Analogies to Inform Policymaking

Using the analytical framework developed by Neustadt and May (1986), this paper develops a case study of a refugee camp set up by UNHCR in order to provide analogies for various policy prescriptions. Paramount among these is the role that various institutions play in educating refugee children in their country of refuge.

The method will proceed in the following steps:

Step 1: Separate what is *known* now from what is *unclear* and both from what is *presumed*. Do the same for other relevant historical analogues. Compare the current situation to the past paying attention to *likenesses* and *differences*. Articulate specific concerns for the present situation.

Step 2: The Goldberg Rule: Instead of asking "what's the problem," ask "what's the story?"

Step 3: Set up a timeline for the issue starting in the present and going back to the story's start.

Step 4: Ask journalists' questions (when, what, where, who, how, and why) to help trace and articulate the history of the issue.

Step 5: Alexander's question: What fresh facts would cause you to change your presumption, your direction, or your decision?

Step 6: Placement: Try to infer the institutional proclivities and personal biases from the history that may be in decision makers' heads, as reflected by external signs. Pick apart stereotypes and outlooks. Look at the incentives within organizations. Pay attention to past approaches that have either succeeded or failed (Neustadt & May, 1986).

Case Study: The refugee camps in Ngara, Tanzania

This case study will focus on the policy goals of access and quality. On April 28, 1994, approximately 250,000 Rwandans crossed Rusumo Bridge and entered Ngara, Tanzania on a single day. By sheer luck, members of the international press, returning from elections in South Africa, were also in Ngara. "In their wake were planeloads of donor government officials, eager to support the humanitarian response in an unusually coordinated fashion" (Sommers, 2000). The Rwandan refugees were initially settled on a hill near the border called Benaco. The site had earlier been cleared in anticipation of a

second wave of refugees from Burundi. Together the international attention, the resources leftover from the Burundian crisis, and a highly organized response by the UNHCR team on the ground resulted in a fairly well-coordinated response to the unprecedented influx of refugees.

Step 1

The international relief community had known about the ethnic friction between Hutus and Tutsis going back at least as far as the incursions by the Rwandan Patriotic Front (RFP) from Uganda into Rwanda in the early 1990s. Moreover, a parallel conflict between Hutus and Tutsis in neighboring Burundi had resulted in a devastating refugee crisis at the same location in December of 1993. Marc Sommers (2000) suggests that it was the poor response to the Burundi refugees that resulted in such a well-organized and timely response to the Rwandans. The UNHCR officials who took charge also had a fairly good understanding of the refugee' physical needs when they arrived at the camp. In addition, we can assume that the UNHCR officials were well versed in the convention rights of the refugees.

What was unclear was the number of refugees. The clearing at Benaco was initially set up for 60,000 people. The movement of 250,000 people in one day had not been seen before (Sommers, 2000). The key unknown was the composition of the refugee population, many of whom turned out to be Hutus who had perpetrated the violence. This would later become a major impediment to repatriation. One positive unknown was the massive media response to the situation. The media crews en route from South Africa were able to get the word out quickly in the international media, resulting in significant financial support from donors around the world. Unfortunately,

this media attention only lasted until July, when 850,000 Rwandan refugees entered Goma, in what was then Zaire. The media abandoned the relatively well-organized refugees in Tanzania for the more numerous and troublesome refugees in Zaire.

Two critical presumptions of the UNHCR were the continued compliance of the Tanzanian government regarding the refugees and the ethnic and political composition of the refugee population. Both of these presumptions would have fallout later in the crisis. The Tanzanian government had a long history of offering support to refugees, but the massive influx of refugees into Ngara overwhelmed the Tanzanian officials. In response, the government of Tanzania delegated almost all responsibility for the refugees to the UNHCR. Critically, they made UNHCR the "point of entry" for all NGOs (Sommers, 2000). The UNHCR initially assumed that the refugees were Tutsis and moderate Hutus fleeing the genocide. It turned out that a significant number of the refugees were, in fact, *genocidaires*, the perpetrators of the violence back in Rwanda.

Five months earlier, the Rwandan refugee crisis in Ngara had a precursor when as many as a quarter of a million refugees from Burundi fled their country into Tanzania. In fact, the analogy can be made that the Burundi refugees in Ngara were, in effect, a dry run for the Rwandan crisis. The same ethnicities were involved from the same region and they sought refuge in exactly the same spot. Lessons learned from the handling of the refugees from Burundi led to a much more organized response to the Rwandans.

The situation in Rwanda was very different from what had happened in Somalia during 1991-1994. The Somali situation loomed large in the minds of the international community—both donor governments and field personnel. The pictures of the dead American soldier being dragged through the streets of Mogadishu on October 3, 1993

gave the Somali crisis a vivid and personal image around the world. On April 6, 1994, at the beginning of the genocide in Rwanda, there were only two international journalists in the entire country of Rwanda (Sommers, 2000). Moreover, the disasters that befell the Pakistani peacekeepers and American military in Somalia hardened the international community to the plight of Africans. The result was a rather numb response to the situation in Rwanda in spite of images of bodies piling up in churches and schools and floating down rivers into Lake Victoria. Another important contrast was between the Rwandans in Tanzania and those who fled into Zaire. With large refugee populations, it is often the case that there are "killers in the midst" of those fleeing the violence. This was certainly the case with the Rwandan refugees, but there were striking differences between refugee populations in Zaire and Tanzania. "Unlike many of the refugee leaders in Zaire, who arrived in military uniform with arms and thousands of identifiable henchmen, fugitives from justice in the Tanzanian camps threatened bona fide Rwandan refugees in a more clandestine fashion" (Sommers, 2000).

Step 2

The story surrounding the Rwandan refugees who crossed into Ngara on April 28, 1994 can be traced back to October 1990. Most of the refugees who entered the camp in Ngara were from the Byumba Prefecture in the northeast of Rwanda and the Kibungo Prefecture in the southeast. During the three and a half years leading up to the genocide in 1994, approximately 300,000 internally displaced persons (IDP) occupied camps within Rwanda as a result of the ethnic violence. These IDP gradually made their way south into the Kibungo Prefecture, where a large number of people were killed in the 1994 genocide. "The vast majority who had fled to Tanzania from Kibungo *prefecture*

(300,000) were Hutu, and they were not fleeing massacres, as their leaders tried to pretend, but on the contrary they were the people who had just killed between 25,000 and 50,000 Tutsi in eastern Rwanda and were fleeing to escape what they felt would be the vengeance of the advancing RFP [Rwandan Patriotic Front] forces" (Prunier, 1997, cited in Sommers, 2000).

The mistrust between the refugees and both the Tanzanian officials and the international aid workers caused a power vacuum that was filled by refugee leaders, many of whom had been politicians back in Rwanda. The fact that they could command obedience from their fellow refugees greatly facilitated the distribution of humanitarian assistance like food. The more sinister side of these refugee leaders' complicity in the genocide went largely overlooked. It was only during the forced repatriation by Tanzanian officials that the refugee leaders, fearing a loss of their authority, became a significant problem. They advised the refugees to avoid the oncoming Tanzania forces and scatter into the interior of Tanzania, infuriating the Tanzanians and strengthening their resolve to get the Rwandans out of their country.

Step 3

What occurred in Rwanda in 1994, while shocking because of its magnitude and brutality, was not without historical precedent. The timeline is an integral part of this case study because it provides a deeper understanding of the historical back and forth that didn't necessarily come through from the media reports at the time, which gave the impression that this was a one-off aberration. Moreover, the parallel situation in Burundi was to have a deep impact in setting the stage for the Rwandans when they entered

Tanzania. The following timeline traces the situation in Ngara back to the middle of the nineteenth century. [33]

On April 6, 1994, the plane carrying Presidents Habyarimana of Rwanda and Ntaryamira of Burundi was shot down returning from Dar es Salaam, Tanzania. During the next 100 days, it is estimated that between 750,000 and 1 million Tutsis and moderate Hutus were killed in Rwanda (Sommers, 2000). This was the second president of Burundi to have been assassinated within a six-month period. On October 21, 1993, Melchior Ndadaye, the president of Burundi was assassinated, re-igniting the ethnic violence in Burundi and causing people to flee into Rwanda and Tanzania.

UNHCR estimated that approximately 245,000 Burundian refugees entered Tanzania between December 1993 and early 1994 (Malkki, 1995). They settled in 50 sites along the Burundi-Tanzania border. Having arrived during the rainy season, they experienced dysentery and other water-borne illnesses. "One UNHCR official lamented that 'We lost about 50,000 Burundian children. This is a shame'" (Sommers, 2000). Money and supplies were slow to arrive so they also suffered from malnutrition due to the conditions in the camp. "Facing starvation in Tanzania and with the situation in their homeland having improved somewhat, all but 60,000 of the refugees returned to Burundi by early 1994" (Sommers, 2000). During this period, UNHCR dispatched an Emergency Response Team (ERT) in anticipation of a second influx from Burundi. The ERT would lay the groundwork for the reception of the Rwandan refugees.

During 1992-1993 there was a period of relative calm in central Africa. On April 4, 1993 the Arusha Accords were signed in Tanzania between the government of Rwanda and the RFP, a large group of Tutsi ex-patriots living in Uganda, formally ending the

[33] A more complete timeline is presented in Appendix 3.1.

violence. On October 1, 1990, RFP fighters had entered Rwanda from Uganda and initiated a civil war that raged until a ceasefire in August of 1992.

Decades earlier, in 1973, ethnic unrest in Burundi, itself home to Tutsis and Hutus, spilled over into Rwanda with a twist as it was the Tutsis in Burundi who had chased over 100,000 Hutus into neighboring Rwanda, sparking further reprisals against the Rwandan Tutsis. The violence in Rwanda subsided somewhat in 1975 when Major General Habyarimana, a Hutu, took power and declared a moratorium on killing Tutsis (Gourevitch, 1998).

During the lead-up to independence in 1962, the Belgians had switched their tribal preference from Tutsi to Hutu emboldening the emerging Hutu power structure. The 1960s saw numerous flair-ups as exiled Tutsi guerillas attacked the Hutus from neighboring countries leading to further purges of Tutsi "sympathizers" still in Rwanda. The origin of organized violence between Hutus and Tutsis began on November 1, 1959, when a group of Tutsi activists attacked a Hutu administrative sub-chief and reprisals against the Tutsis occurred across the country. The first organized act of Hutu independence occurred in 1957, when nine Hutu intellectuals published the *Hutu Manifesto*, which called for democratic change.

After World War II, Flemish priests—themselves aggrieved members of a subjugated majority dominated by the minority Walloon back home in Belgium—began to encourage the Hutus to fight for political change. This was after the Belgians had conducted a census and issued ethnic identity cards in 1933-1934, formally entrenching the ethnic divide between Hutus and Tutsis. The results of the census showed a

population that was 85 percent Hutu, 14 percent Tutsi and 1 percent Twa.[34] After World War I, the League of Nations gave control of Rwanda to Belgium who expanded the ethnic divisions between the Tutsi and Hutu began by the Germans (Gourevitch, 1998).

In the scramble for Africa, Germany was the first country to colonize Rwanda. After the death of Mwami Rwabugiri in 1897, the last king of a 500-year Tutsi dynasty, the Germans set up the first administrative offices. Amid the turmoil surrounding the succession of Mwami Rwabugiri, the disjointed Tutsi leaders reached out to the Germans in order to maintain their hegemony. The Germans were glad to have a willing partner to help them exert their indirect rule over the colony and they elevated the Tutsi as the administrative class. The root of this decision can be traced back to 1863 when John Hanning Speke proposed the Hamitic hypothesis, which claimed that civilization in central Africa had been introduced by the taller, aquiline-featured people, "whom he considered to be a Caucasoid tribe of Ethiopian origin, descended from the biblical King David, and therefore a superior race to the native Negroids" (Gourevitch, 1998). In Rwanda, the taller, slimmer people were members of the Tutsi tribe, and the shorter more stout Rwandans were the Hutus, though intermarriage has blurred this distinction and identity cards were often used to identify Tutsi during the massacre.

Step 4

The Rwandan refugee crisis presents an interesting case study due to the high degree of coordination between international aid organizations and the host country government at the beginning. In addition, there was a good working relationship between the UNHCR and refugee leaders that facilitated the distribution of relief supplies within the camps, despite the violent past of many of the refugee leaders. In examining the

[34] More commonly known as Pygmies.

refugee schools in Ngara, changes in the relationships with the host country and refugee leaders had a significant impact on the situation and resulted in a contentious repatriation. The impact of these changing relationships highlights the importance of the interplay between the State, families and professional educators laid out by Gutmann, any one of whom can exert their authority.

The Tanzanian government had no formal policy for the education of refugees residing in the country when the Rwandan refugees arrived in Ngara. The authority over refugee education matters was left to the Ministry of Home Affairs (MHA), a security ministry with no experience in education. In July of 1994, three months after the refugees arrived, the MHA signed a Memorandum of Understanding (MOU) with the international aid organizations who would be involved in setting up an education program in the camps. The signatories to the MOU were the MHA, UNHCR, UNICEF, UNESCO-PEER[35], and the German development enterprise GTZ[36]. The MOU laid out the responsibilities of each organization and delegated a great deal of authority to UNHCR (Aguilar & Retamal, 1998). In addition, the MOU set out the principle of education for repatriation, which meant that the students were taught the Rwandan curriculum mainly by Rwandan teachers. It was felt that this would lessen the trauma of the children and lead to an easier repatriation later on. The main priority was primary education because the MHA thought that post-primary education would create an incentive for the refugees to stay in Tanzania (Bird, 2003).

The MOU outlined a three-phase model for the refugees at Ngara. The first phase was a recreational phase, which consisted of songs and play activities designed to help

[35] United Nations Educational,Scientific and Cultural Organization Programme of Education for Emergencies and Reconstruction
[36] Deutsche Gesellschaft für Technische Zusammenarbeit

the children adjust to their new environment. The first phase was also meant to give officials time to plan for the subsequent phases of the project. The second phase consisted of the distribution of Teacher Emergency Packages (TEPs), which contained a kit of teaching materials designed to equip a classroom for approximately 40 children. The kits covered a basic curriculum for literacy and numeracy for the first three grades of instruction. The final phase focused on repatriation and the curriculum followed the one used in Rwanda in order to effect a smoother transition of the children back into their country.

The education system set up in Ngara was designed to provide access to primary education for as many children as possible. The program did achieve a high level of gender equity in the early grades and a survey in 1996 showed that "approximately 60 percent of primary school-age children were enrolled in primary school" (Bird, 2003).[37] The attrition rate of girls increased as they got older and were expected to perform domestic duties and look after younger siblings. The psycho-social needs of the children were an important part of the system set up in Ngara and each school had a teacher trained to identify signs of distress in the children. The Ngara camps were unique in using non-tradition methods to care for unaccompanied minors (UAMs). The camps relied upon foster families instead of segregating UAMs into centers within the camps. In addition, UAMs were given first priority for schooling although, "many did not attend, due to work responsibilities, lack of school space, lack of uniforms, or embarrassment with their poor clothing" (Bird, 2003). Secondary schooling was not a priority of either

[37] The enrollment rate for the Tanzanian children in Ngara district was approximately 15 percent for the same period (Bird, 2003).

the Tanzanian MHA or UNHCR, but some refugee schoolteachers took it upon themselves to start informal secondary schools without any external financial support.

Educational quality was an important policy goal within the Ngara camps. By deciding early on that the refugees would be educated for repatriation, administrators adopted the Rwandan curriculum. Obtaining textbooks caused early delays because printing them locally was slow and the government of Rwanda was initially reluctant to sell them to UNHCR. Other materials like exercise books and pencils were also delayed and funding, which ran exclusively from UNHCR to the NGOs, was precarious due to the education sector's low priority compared to the survival needs of the refugees. While there were a significant number of educators among the refuges, the large number of refugee children required the relief agencies to train para-professionals and to train all teachers in dealing with the psycho-social issues of the refugee children. Unfortunately, there was not much monitoring of the camps' teachers. Another important issue surrounding the education for repatriation was whether the education the refugees received in Tanzania would be recognized when they returned to Rwanda. "UNHCR and UNICEF improvised certificates that were issued shortly before the refugees returned, but evidence suggests that these certificates were of little use for children integrating back into the education system on their return" (Bird, 2003).

Step 5

There were two significant oversights by administrators of the refugee camps in Ngara. First, was the presumption that the Tanzanian officials would continue to step aside and give UNHCR free reign over security in the camps and in accrediting NGOs working in the camps. Eventually, security concerns, environmental degradation, and a

feeling of being ignored by the international community led the Tanzanian officials to assert their control. If the administrators had been aware of the Tanzanians' frustration, they may have been able to avoid or soften the forced repatriation in 1996. Second, UNHCR ignored the composition of the refugee population to their detriment. "Reliance on a small cadre or Rwandan refugees for coordinating aid activities with refugee populations while also suspecting that they might be criminals had repercussions on relations between refugees and international officials generally, and on UNHCR in particular" (Sommers, 2000). Had officials recognized the problem of the criminal element with the camps, they could have taken steps to stop the intimidation that occurred and prevented the refugee leaders from encouraging the refugee to flee to the interior of Tanzania, frustrating Tanzanian official and further disrupting the lives of the refugees.

Step 6

This section places the organizations and people involved in the refugee education system in Ngara, Tanzania during the period 1994-1996 into historical context. The primary institutions were the UNHCR and the NGOs working in Ngara, and the Tanzanian government officials. The primary people were the refugees themselves. The education program within the refugee camps in Ngara has been fairly well received in the literature and the program is seen as having had a high degree of organization due to the coordination from UNHCR, the initial response of the Tanzanian government officials, and the interest the refugees had in educating the children. In the end, the program was cut short by the forced repatriation instituted by frustrated host country officials and made worse by a group of refugee leaders who had perpetrated the violence in Rwanda

and later intimidated the refugees and instigated their massive flight into the interior of Tanzania during the repatriation.

The international humanitarian community had not performed particularly well during the influx of Burundian refugees into Tanzania in December of 1993. There was a great deal of finger-pointing between agencies like UNHCR and the World Food Programme (WFP) after the death of a number of the refugees. "No agency seemed to have performed particularly well, including UNHCR, which received low marks for the exercise of its coordinating role. A UNHCR official admitted that there was not good coordination but added that there was also no press interest and no donor money" (Sommers, 2000).

In the case of Rwanda, there was a significant amount media coverage resulting in a massive response from the donor community. Marc Sommers (2000) credits the successful coordination of the Rwandan refugees to five factors. First, was luck. Because they were expecting a second wave of refugees from Burundi, UNHCR had workers on the ground with supplies available to distribute. They immediately began working with other donor and NGO professionals who were also in the area. Second, there were good relations between the heads of the various agencies on the ground and when UNHCR took charge, they were cooperative. Third, for the first time the large donors, the European Community Humanitarian Office (ECHO) and the United States government, funneled all the money through UNHCR, which streamlined the decision-making process. Fourth, the Tanzanian government stepped aside and let UNHCR approve the NGOs that would be allowed to work in the camp. In the end, they selected 12 and rejected 40 NGOs for work in the Ngara camps. Fifth, was a good working

relationship between UNHCR and the refugee leaders, who were helpful with specific tasks like locating unaccompanied minors.

In the end, UNHCR took charge of the situation and by controlling the funding and the choice of NGO partners, they were able to provide efficient, effective leadership. The focus was on providing an immediate response. The NGOs who were selected to work in the camps responded well to UNHCR's lead. "A kind of mythology soon took shape. One observer noted that 'The leadership and quality of the UNHCR team seemed to be an inspiration to the NGOs'" (Sommers, 2000). Sommers (2000) goes on to conclude that the success of UNHCR hinged "on the high degree of authority it exercised, reflecting both an unusual delegation from the Tanzanian government and a high degree of control over the allocation of funds."

The authoritarian approach of UNHCR during the initial phase of the crisis tended to ignore the expertise of the refugees, many of whom had been teachers in Rwanda prior to the genocide. Moreover, by ignoring refugee-led initiatives earlier, it made it more difficult to invite community participation later on. The TEP kits were easy to distribute quickly, but they had been modified from a similar kit used with Somali refugees and the translation of the guidebook into Kinyarwanda was not well done. The trained educators resented the 'school in a box' approach. UNHCR and its fellow agencies tended to rely too heavily on the TEP kits and assumed that they would cover the educational needs of the refugees. "[T]hey were seen as more of a public relations exercise for the agencies distributing them" (Sommers, 2000).

Some of the institutional preconceptions of UNHCR regarding schooling proved inaccurate. Due to the recognition of education as a basic human right, the ethos of

accessibility to education pervades humanitarian organizations. Unfortunately, the focus on access led to significant overcrowding in the classrooms because officials underestimated the demand for education in the early grades. Another concern for humanitarian officials is gender equity. In Ngara, the genders were equally represented but it was the high attrition rate for both genders that was the problem. "Almost 50 percent of both sexes drop out per year in the first three grades" (Bird, 2003).

The host country government turned out to be the most important institution in Ngara when the Tanzanian officials forcibly repatriated the Rwandan refugees. Historically, Tanzania has a very good reputation in caring for refugees, but the Tanzanian government had never had to deal with such a large inflow of refugees before. It was mostly out of necessity that they delegated so much authority to UNHCR. The Tanzanian government focused on the border and left the security inside the camps to UNHCR (Sommers, 2000). The institutional bias of the Tanzanian government was to repatriate the refugees quickly. In setting up the education system, their focus was on primary education and they chose the Rwandan curriculum to ease the transition back to Rwanda. This is in contrast to the Kakuma refugee camp in Kenya, which adopted the Kenyan curriculum and is still in operation (Sommers, 2002a).

Tanzanian officials not only had to worry about the refugees, but they were also concerned about the disparity in funding between the refugees and the local citizens. Refugees significantly outnumbered the local population and host country nationals were aware of the disparity, particularly with regard to schools. Ngara district was in the bottom five of all school districts in Tanzania in 1996, in spite of 25 years of donor assistance. The attitude of donor organization to fund only refugee programs widened the

rift between locals and the refugee population. Newspaper stories and political cartoons highlighted the fact that refugees had more resources than the local population. In the end, UNHCR developed a policy of assistance to refugee-affected areas in 1995 (Bird, 2003).

While the Tanzanian officials ceded a great deal of responsibility to UNHCR, they were still concerned about their sovereignty. As the refugee situation wore on, concerns about security and the environmental impact of the large number of refugees arose. Moreover, the humanitarian community began to take the autonomy given to them by the Tanzanian officials for granted. "A UNHCR official recalled how agencies in Ngara grew 'extremely arrogant' in their interactions with Tanzanian officials" (Sommers, 2000). By 1996, the relationship between the Tanzanian officials and the humanitarian community had worsened. "As another UNHCR official reflected, 'the Tanzanians called in their chits, and said, "we worked with you [before], but now we are in charge"'" (Sommers, 2000).

The refugees themselves brought a raft of outlooks, stereotypes and personal experiences to the camps. The Tanzanian officials and UNHCR administrators made the decision to give post-primary education a low priority. "Refugees, however, were very clear about their own needs and considered it a high priority, realizing the role of highly educated people in the future development of their country" (Sommers, 2000). In response, refugee schoolteachers began secondary schools in the camps. Unfortunately, the fees these schools charged excluded a number of potential students, making the informal secondary schools somewhat elitist.

The presence of a large population of unaccompanied minors drew the attention of UNHCR. By placing these children with foster families instead of housing them apart from the other refugees, administrators hoped to better provide for their emotional needs. But an analysis showed that "33 percent of all UAMs were living alone in child-headed households" (Bird, 2003). The fear of leaving their possession unattended often kept these children out of school. In other cases, UAMs were unable to attend school because their foster families had given them a large amount of domestic work, exploiting them as a source of cheap labor (Bird, 2003).

The one group within the refugee population that had a profound impact on life in the camps was the group of refugees who had been responsible for violence in Rwanda. In the literature, these refugees are referred to variously as political leaders, commune leaders, *genocidaires*, and intimidators. By lying low and blending into the camps, these refugees were both overlooked at times and employed on specific humanitarian projects by UNHCR at others. Sommers (2000) relates an interesting example of how the commune leaders could be both helpful and detrimental to the humanitarian mission. Due to the fact that the camp was well organized and the commune leaders had traveled with their former constituencies fairly intact, the commune leaders proved particularly helpful in locating unaccompanied children (UAC). "But once found, the commune leaders would 'pressure the UAC not to go back' to Rwanda to reunite with their parents. ICRC[38] officials assumed that the leaders did this because successful repatriation threatened their influence over refugees. As a result, '80-90 percent of the UAC refused to return' to Rwanda" (Sommers, 2000).

[38] International Committee of the Red Cross

The refugees who crossed into Ngara were more violent than other refugees that the Tanzanian officials had dealt with in previous emergencies. "At night, murder, gang warfare, and occasionally even militia training took place while girls and women avoided going to latrines for fear of being raped" (Sommers, 2000). Moreover, the refugees were distrustful of foreigners, including the Tanzanian officials, whom they likened to the Ugandan government officials who had turned a blind eye to the RFP fighters in their midst during the early 1990s. Early and continued repatriation efforts by UNHCR were met with scorn and lowered their credibility in the eyes of the Rwandan refugees. Tanzanian officials started to see the refugees as a security threat and began to restrict their movements and patrol the area more closely (Sommers, 2000).

Summary of the refugee camps in Ngara, Tanzania

The poor performance of the humanitarian community in dealing with the arrival of refugees from Burundi in December of 1993 and an anticipated second wave of Burundian refugees set the stage for a well-organized response to the approximately 250,000 Rwandans who arrived in Ngara, Tanzania on April 28, 1994. The media coverage and strong donor support gave UNHCR an abundance of resources with which to respond to the crisis. Two key oversights influenced the forced repatriation of the refugees by the Tanzanian government in December of 1996. This case study uses the framework set up by Neustadt and May (1986) to place the Rwandan refugee situation in context by analyzing three key players: the government of Tanzania, UNHCR and the humanitarian community, and the Rwandan refugees themselves.

Relief agencies have a short time horizon and rightly focus on seeing to the immediate physical needs of the refugees. Education often gets put in the gray area

between immediate needs and development assistance. In the case of Ngara, the urgency of the situation led UNHCR to marginalize the Tanzanian officials and partner with refugee leaders who had been involved in the genocide. In the end, both of these actors exerted their authority to the detriment of the refugees. The government of Tanzania responded to the deteriorating relationship with UNHCR by effecting the repatriation on their terms. In response, the commune leaders used their authority to intimidate the refuges and encouraged them to disperse into the interior of Tanzania.

Conclusions

This analysis has incorporated three approaches to look at the education of refugees in their country of asylum. First, Gutmann (1999) laid out a philosophical foundation based on three competing interests who all claim to have authority in educating children: the State, families, and professional educators who focus on the rights of the child. Second, McDonnell and Elmore (1987, 2004) describe the policy instruments available to educational policymakers: mandates, inducements, capacity-building, system-changing and hortatory programs. Finally, Clune (1987) likens institutional choice to the identification of a decision maker based on an agreement of goals and the capacity to meet those goals. Implementing the policy goals of access, educational quality and socialization for refugee children in their country of asylum highlights the difficulties that policymakers face. These three approaches help shed light on why these difficulties arise and the root causes of the unintended consequences of educational policies.

Not all policy instruments are effective in refugee situations. Refugee crises have shifted from Europe, back in 1951 when refugees were first officially recognized by the UN, to Africa and Asia today. Reliance on mandates and incentives assumes a high degree of capacity on the part of the targets of the policy. That capacity is missing in today's conflict zones. As a result, policymakers should look to capacity-building and hortatory instruments to improve the gender equity, generally quality, and peace-promoting aspects of refugee education.

Capacity-building requires substantial resources from international donors. Policymakers must walk a fine line when putting resources into a crisis zone after a conflict, making sure not to cause resentment from the citizens of the country of asylum. At the administration level, they must be careful to maintain parity between the living conditions of the refugees and the host country nationals on the one hand, and between refugees and those people who remained in the country of origin on the other. Deviations from this policy could lead to friction between the various groups (Brown, 2002). Hortatory programs rely critically on the targets sharing the same values as policymakers. We have seen that in the case of gender equity, families can have very different goals for their daughters than the international humanitarian community. Hortatory initiatives would benefit from feedback from the target population and policymakers should not assume Western values.

System-changing is the bridge between policy instruments, institutions and stakeholders. The need for system-changing arises from the perceived failure of one or more of these entities and that perception further leads to an environment of mistrust. The case study demonstrated that UNHCR had the funding and the institutional capacity

to set up the refugee camp in Ngara, but only with the consent of Tanzanian government officials. Preston warns of the delicate balancing act that host country governments must perform. They struggle to meet the needs of their own populations and they do not want to appear to their citizens as if they are providing better services to foreign refugees. This impression is exacerbated when emergency relief funds appear more readily available than development assistance. In response, they develop a rather cool attitude toward non-vital assistance—like education—to refugees. If they didn't, they fear that 1) the refugees might begin to think about long-term settlement; 2) they might antagonize their own citizens; 3) they might entice more refugees to come across the border; and 4) they may aggravating the governments of sending states by appearing to encourage settlement. Host countries are particularly skeptical of education because of its potential for political subversion (Preston, 1991).

At the same time, policymakers should not ignore the problem and allow refugee education to fall behind that provided in the host country. They must further balance the concerns of host nations and international financial institutions, which generally draw a distinction between crisis assistance and development aid. As the case study demonstrated, the international humanitarian community can provide the resources for a refugee crisis, but they ignore input from the host country government to their detriment. Interests of the host country dominate these cases even though there are international mandates for the rights of the child. Moreover, input from the refugees is critical in avoiding the kind of intimidation that occurred among the refugees in Ngara.

The case study highlights how complicated system-changing can be. While families and host country governments may not have the capacity to implement

educational policy, they do have the ability to thwart it. The UN conventions that cover the rights of the child have given the authority of refugee education to the international humanitarian community. But they should not take the other institutions for granted. When conflicts arise in refugee education, there is no deliberative democracy to resolve them. Institutions like the UNHCR need to solicit feedback from other stakeholders to make up for this absence. With starvation and disease a constant threat, there is an imperative to act quickly to meet the physical needs of refugees. But pragmatism should not lead to myopia. In the end, the rationale for intervention may rest less on reason—the ability to predict the relationship between ends and means—and more around the fundamental values that lead us to intervene in the first place. With regard to refugee education, decision makers like UNHCR should impose their authority not only because of practical considerations, but also because of an appeal to principled limits on political and parental authority. UNHCR should educate girls because the actions of parents who keep their daughters out of school violate Gutmann's dictums of nonrepression and nondiscrimination.

APPENDIX 3.1

Time Line for Ngara/Rwanda

Oct. 1, 1990	Rwandan Patriotic Front troops enter Byumba Prefecture, Rwanda, from Uganda, commencing a civil war.
Aug. 1, 1992	A cease fire and preliminary peace accord is signed between the Rwandan government and the RPF.
Aug. 4, 1993	After months of negotiations, the Arusha Accords are signed in Arusha, Tanzania, between the Rwandan government and the RPF.
Oct. 21, 1993	Melchior Ndadaye, Burundi's recently elected president, is assassinated. In the ensuing ethnic violence, 50,000 Burundian people are killed, nearly all civilians.
December 1993	With estimates of a million or more Burundians displaced from their homes, Burundi refugees pour into Rwanda and Tanzania. The camps in Tanzania are remote and difficult to reach, the humanitarian response is underfunded and poorly organized. Estimates of the refugee population range from 245,000 to more than 500,000.
February 1994	Facing disease and starvation, most of the Burundi refugees return to Burundi. About 40,000 remain in Tanzania. Most are eventually transferred to Lukole Camp in Ngara District.
April 6, 1994	The airplane carrying presidents Ntaryamira of Burundi and Habyarimana of Rwanda is shot down near the Kigali airport. Rwanda's genocide begins later in the day.
April 28, 1994	About 250,000 Rwandans cross the Rusumo Bridge at the Tanzanian border in 24 hours. They are placed at a site called Benaco in Ngara District. The Rwandan refugee population will eventually total more than a half million.
July 1994	Rémy Gatete, former Kibungo Bourgmestre, suspected genocidaire, and leader in the Rwandan refugee camps, organizes a demonstration after UNHCR asks him to report to its office in Benaco refugee camp. He is subsequently arrested and removed from Ngara District.

APPENDIX 3.1

Time Line for Ngara/Rwanda - Continued

April 1996	European Union Commissioner for Humanitarian Aid Emma Bonino and USAID Administrator Brian Atwood visit the Rwandan refugee camps in Ngara District and insist that the Rwandan's stay in Tanzania "must be temporary."
November 1996	About 600,000 Rwandan refugees return to their country from Zaire in the wake of clashes near the refugee camps involving the Zairian national army and former Rwandan government soldiers against Zairian insurgents led by Laurent Kabila and the Rwandan national army.
Dec. 5, 1996	Tanzanian government and UNHCR officials announce a plan to repatriate the Rwandan refugees by year's end. The plan involves coordination with the Rwandan government.
Dec. 12, 1996	More than 500,000 Rwandan refugees in Ngara District abandon the refugee camps and head into the Tanzanian interior. The Tanzanian army acts swiftly to reverse their direction and forcibly turns them towards Rwanda. As the Tanzanian and Rwandan governments had wished but in a fashion that marginalized the international humanitarian community, nearly all the refugees were repatriated to Rwanda before the end of the month.

Source: Sommers, 2000

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