12-1-2011

Managing Undocumented Students: Do Undocumented Students Hinder Student Performance?

Gregory Hill
Boise State University

Daniel P. Hawes
Kent State University

Managing Undocumented Students: Do Undocumented Students Hinder Student Performance?

Gregory C. Hill, Ph.D.
Boise State University

Daniel P. Hawes, Ph.D.
Kent State University

Abstract

Illegal immigration is a salient topic for state level policy makers and for local units of government who are responsible for implementing policies. One particularly relevant policy topic is to what extent undocumented students affect performance in public schools, and if undocumented students do have an impact on public school performance, what can be done about it? Using Texas as a case study we find that, surprisingly, undocumented students have only a marginal effect on the overall performance on standardized exams in public schools. Among Latinos, however, we find that there is a statistically negative effect. Furthermore, evidence suggests that managerial skills can mitigate those negative effects.

Introduction

In May 2010, Arizona passed SB 1070, dedicated to issues of illegal immigration. SB 1070, the highest profile of the many immigration related bills passed in 2010, draws its primacy from the provision that requires law enforcement officers to question suspects on citizenship if there is "reasonable suspicion" that they are in the country illegally (Arizona Senate Bill 1070, 2010). Another recent example comes from Oklahoma. The Oklahoma House of Representatives passed a bill (HB 3384) requiring schools to collect citizen status information from students (Terrill 2010). The bill's sponsor argues it is a way for the state to determine the cost of educating undocumented students. Opponents argue that the bill violates the Supreme Court ruling of universal education without respect to citizenship.   In fact, in the first half of 2010, there were nearly 200 immigration related bills passed in state legislatures, multiple lawsuits against the federal government, and an untold number of rallies and protests (Bailey, Emerson, and Fitzgerald 2010). Clearly, immigration is on the American political conscience.

Immigration issues are not constrained to 2010. Some recent examples of bills passed suggest the state-level intentions to address immigration questions in both primary and secondary education. Utah (twice), Wyoming, Nevada, Oklahoma, Oregon, South Carolina, Georgia, Arkansas, California, Illinois and New York have all enacted legislation since 2005, mostly barring undocumented students from receiving scholarship or in-state tuition benefits at state colleges and universities. Other states are considering bills similar to these.

Of particular interest here is the debate over the effect of undocumented students on school performance. Given the myriad undocumented education-related bills, state legislators, it would seem, feel that there is a negative effect, but there is controversy over these assertions, mainly due to the lack of empirical evidence. The lack of empirical evidence can have consequences on the decision making processes, leaving elected officials to make decisions based on anecdotes and stories, or worse, hunches and gut feelings. In this analysis, we provide empirical evidence of the effects (or lack thereof) of undocumented students on public school performance, and in cases where that affect is negative, what can be done about it.

Educational performance is not simply constrained to student demographics. Much of the literature in public administration suggests management affects performance as well. To address the situations where undocumented students do affect student performance, we offer a theoretical explanation on how these negative effects can be managed. In the immigration policy setting, we seek to determine if, employing the

1

qualities outlined in the extant management literature, managers are able to mitigate the effects of undocumented student performance on the district's overall performance. This study's aim is two-fold: what are the effects of undocumented students on performance, and whether management - operationalized as public school superintendent qualifications and skills - mitigates the negative effects of undocumented students. Below, we present a unique methodology for measuring undocumented students, as well as the "management matters" theory, provide supporting literature to justify the analysis, describe the research design, and discuss the findings.

Educational Performance and Disadvantaged Groups

The literature on Hispanic and immigrant education is small yet well-tested, and provides us some guiding principles upon which we build our expectations. Hispanics, either of legal or illegal immigration status, tend to struggle in the classroom compared to their Anglo counterparts. Meier and Stewart (1991) claim that Hispanic students are denied the same educational opportunities that their non-Hispanic counterparts enjoy. In fact, discrimination leads to, among other things, higher dropout rates among Hispanics. Others (Garcia 2001, Ochoa 2003) have argued that Latino students are treated as second-class citizens, and as such, they are denied many opportunities (such as access to core curriculum and access to college). Ochoa (2003) argues that denying Latinos these rights is an impediment to academic achievement and is in contradiction to the democratic ideal of equity among race and social class, indeed, an egalitarian society.

In terms of building an educational "culture," Garcia (2001) posits that, based on theories of social stratification, that there is a correlation between the cultural match of school and home. In other words, homes that emphasize education will see better results in the classroom. However, this is not solely the burden of the home. Garcia argues that the absence of social resources can have a deleterious effect on the school, and may be one of the indicators to account for educational inequalities among Hispanics and non-Hispanics.

One reason there is very little known about the actual performance of undocumented student performance is the *Plyler vs. Doe* Supreme Court decision of 1982, wherein the Supreme Court ruled that all children, regardless of citizenship, have a right to access public education (*Plyler v. Doe 1982*). That is, no child can be denied access to public education based on citizenship status. Because of the constraints on tracking children based on citizenship, there is no work that we know of that addresses the actual performance of undocumented students. There is, as noted above, a considerable amount of work on Latino educational performance (of which undocumented students are surely a part) but nothing on undocumented students, per se. The analysis that follows is the first to actually delineate a methodology for determining undocumented students from documented students, and measuring their impacts on performance.

This scholarship leads to the following conclusions. First, undocumented students have cultural biases against them, either tacit or direct. Often, from a cultural perspective, English is not the primary language spoken in the home or even the community. As the exams are predominately administered in English, we can see the disparate disadvantages. In Texas, for example, Spanish versions of the state exam are only offered from 3rd to 6th grade, after which only the English version of the exam is offered. Second, Latino students – and undoubtedly undocumented students – have a higher dropout rate than their Anglo and African-American counterparts (Leal, Martinez-Ebers and Meier 2004). Thus, the theoretical assumptions of the struggles Hispanic students would lead us to conclude that overall, their scores on performance indicators will be lower than their non-Hispanic counterparts. Third, we can posit based on the literature that the more undocumented students a district has, the more resource displacement there is to deal with the disparate disadvantages, and thus less resources for traditional classroom instruction. Therefore, the presence of a greater number of undocumented students in a district, the more resources they consume, and thus should negatively affect the overall test scores.

If there is a possible link between performance and undocumented students, is there something that can be done about it? We find that there is ample literature in the public management scholarship to suggest that not only does a link exist, but that management may mitigate whatever negative effects are present.

Management Literature

Of the many scholars and works associated with public management, the one that is most germane to this analysis is the O'Toole and Meier model (1999). To summarize their theory, public management is made up of two primary components: internal management and external management. These two components make up the root of the O'Toole and Meier management theory.

Managerial Functions

To affect performance, a manager must be able to develop and establish relationships, organize management teams, and implement managerial strategies. All of these tasks take time. Thus, *managerial experience* is an important quality of managerial success. So too is *managerial education*. Highly educated managers have some things in common, including education attainment, or the degree that the superintendent has attained, which suggests that they have the capacity and training in place to deal with varying degrees of managerial tasks. Finally, effective public managers are able to establish and utilize *political networks*. (We present these variables in great detail in the Data and Methods section below.) O'Toole and Meier (1999) argue that networks are the link to managing the environment. Recent trends in public sector service provision show movement toward privatization, contracting out, and "reinventing government" (see Osborne and Gaebler 1992). As these trends gain momentum, networks and network management increase in importance (O'Toole 1997).

Data and Methods

The first empirical challenge in addressing these questions is to find a measure of undocumented students. These data are not directly collected by the government or school districts; thus, the only measures available are rough proxies. While there is bound to be measurement error in any measure of undocumented students, our goal is to find a measure that minimizes that error and that will be highly correlated with the true number of undocumented students.

Students who register in Texas public schools are not required to report their immigration status. However, the state of Texas has implemented a tracking system for students called the Person Identification Database (PID). This database assigns a unique identifier for each student based on several identifiers including social security numbers. When students register, they must provide a social security number (SSN); however, if they do not provide one, they are assigned an alternative number in its place. These identifying data are available at the school district level by race and ethnicity. These data, then, provide us with a count of the total number of Hispanic students within each district who did not provide a social security number during school registration.

Using these data, we developed two measures for undocumented students.[1] For the first measure, we take the number of Hispanic students with alternative identification numbers as a percentage of *total student enrollments*. This measure is used to examine the effect of undocumented students on *overall* student performance; that is, it allows us to examine whether districts with larger percentages of undocumented students see lower scores due to the percentage of undocumented students.

We create a second measure of undocumented students by taking the number of Hispanic students with alternative identification numbers as a percentage of total *Hispanic* student enrollments. This measure is used to examine the effect of undocumented students on Latino performance, which addresses the question of whether Latino students as a whole perform more poorly if a larger percentage of them are undocumented. Since there may be district-level differences or discrepancies in school district administrative procedures, we adjust these percentages accounting for the percentage of *non-Hispanic* students who failed to provide social security numbers within each district. This measure was created by subtracting the percentage of students without social security numbers who are *non-Hispanic* from the Hispanic student measure. By doing this, we account for the possibility that some districts may be less diligent in documenting SSNs from *all* students. This provides a more conservative estimate of undocumented Latino students – the concept we ultimately want to measure.[2]

While not all undocumented students in this measure are illegal, all illegal students enrolled in public schools (provided they do not provide a phony identification card) should be included in these figures. At the very least, these measures should be highly correlated with true undocumented student enrollments. Given these considerations, we believe this measure serves as an adequate proxy for undocumented students in Texas public schools and is arguably the best measure presented to date.

First, our analysis examines the relationship between our measure of undocumented students and student performance. We include two measures of student performance: overall performance and Latino-specific performance. Performance is measured as the percent of students within each district who passed all components of the state mandated exam. The state of Texas requires all public school districts to administer the Texas Assessment of Knowledge and Skills (TAKS) exam in the spring semester of each academic year to students at multiple grade-levels. All students are required to pass this exam in order to graduate. This exam is the state's primary means of assessing school district performance and is thus highly salient to parents, teachers and administrators.

As previously mentioned, O'Toole and Meier have argued and empirically verified that management matters for organizational performance. For our empirical analysis we utilize several measures of management from their past work to examine how management moderates the relationship between non-citizen undocumented students and performance. [3] O'Toole and Meier administered a mail survey to all superintendents in Texas in the fall of 2000, 2002 and 2005. Included in these surveys were a number of questions pertaining to management styles and activities. The management variables employed in this analysis include managerial experience, and managerial networking, and managerial education level; the measurement of each will be dealt with in turn.

The measure of managerial experience is the length of time the superintendent has been employed by the district in any capacity. This captures the superintendent's familiarity with the district, and assumption is that the longer the manager is in the district, the more stable the organization will be, having made the changes the superintendent believes are appropriate within the management team. Managerial experience with a district – even in a non-administrative role – should increase a manager's awareness of issues that affect performance and may provide a better institutional memory regarding what has worked (and not worked) in addressing problems in the past. This should be particularly important in districts with non-traditional populations since the issues and problems that arise in these settings may be different from those in more traditional settings (or from what one might learn in a textbook). Thus, the longer the tenure, the more likely the superintendent can mitigate any deleterious influences, including any negative effects undocumented students may have.

Managerial networking measures the interaction of the superintendent with important institutions and individuals in his or her environment. This measure taps the concept of managing outward; that is, interaction with external organizations. This measure is a composite measure created using factor analysis and based on the level of the superintendent's interaction with four sets of external actors: local business leaders, other superintendents, state legislators, and the Texas Education Agency. All four items load positively on the first factor with an eigenvalue of 2.03 and produces a composite score ranging from -2.92 to 2.95 where higher values are associated with more external networking (see Meier and O'Toole 2002; 2003; 2004 for more details on this measure).

Finally, it may be that superintendents with higher levels of education will be better equipped to face the challenges that undocumented students can bring. Many of the problems that arise in nontraditional populations require solutions that are distinct from more typical settings. Arguably, managers with higher degrees (e.g. master's, doctorate) are more likely to be exposed to advanced concepts and applications that may increase their ability to address complex problems. To test this hypothesis, we employ a measure of managerial educational attainment. The O'Toole and Meier management survey asks superintendents what is the highest educational degree they have earned. This measure is coded from 0 to 4, where a value of 0 represents a Bachelor's degree and a value of 4 represents a PhD. We expect that highly educated managers are more likely to be equipped with the skills that will allow them to generate and spend the political and social capital necessary to magnify their goals and objectives, among them equal educational attainment among all students.

A number of control variables are also included. These controls fall into three categories: resources, environmental constraints, and teacher quality. Resources are captured using three variables are used: total revenue per pupil (in $1000s), state aid per pupil (in $100s), and the percent of total expenditures that are spent on instruction. Environmental constraints include the average attendance rate, percent enrolled in gifted/talented classes, and percent enrolled in bilingual classes. We also control for the percent of students who qualify for free or reduced meals (low income students), and the percent of black and Latino students.[4] To prevent double-counting of undocumented students in the undocumented variable and percent Latino student variable, we purge the undocumented percentage from the percent Latino student variable (see Appendix for details). These disadvantaged groups tend to perform less well on standardized exams; thus, we include these controls in the model. We also control for class size which is measured as the number of students per teacher (i.e. student-teacher ratio).

Finally, we control for several teacher characteristics. These include teacher turnover and teach experience. Teacher turnover is measured as the percent of teachers in the fall semester who were not employed the fall of the subsequent year. Teacher experience is operationalized as the average number of years of professional experience for teachers in the district. Furthermore, we control for the percent of teachers with advanced degrees (master's or beyond). We also include a measure of the percent of Latino teachers in the district. A wealth of literature on representation suggests that Latino representation among teachers should improve Latino student performance (e.g. Meier and Stewart 1991; Seldon 1997). Latino teachers are more likely to be aware of and sensitive to Latino-specific issues, including those that affect undocumented students, than are their non-Latino counterparts. Table 1 lists the variables used in these models.

The analysis is performed on 1039 Texas public school districts from 2000 through 2005 resulting in over 6000 observations. For estimation, we employ OLS multivariate regressions with fixed effects for individual years. We also use robust standard errors to correct for non-constant error variance in the data.

Thus, we model student performance as a function the percent of undocumented students and environmental controls, which includes resources, demands, and constraints. This relationship can be formally described as:

$$O = \beta_1 U + \beta_3 X + \varepsilon$$

> where
> O is a measure of performance,
> U is the percent of undocumented students,
> X is a vector of environmental variables,
> ε is a random error term,
> and the β's are estimable parameters.

The second model, however, is non-linear and is concerned with how management moderates the relationship between *U* and *O* (i.e., undocumented students and performance). Put formally, the second model can be described as:

$$O = \beta_1 U + \beta_2 M + \beta_3 UM + \beta_4 X + \varepsilon$$

where *M* is a vector of managerial variables, and β_3 captures how management moderates the relationship between undocumented students and Latino performance. The expectation is that good management will reduce or negate any negative relationship undocumented students might have on student performance.

Findings

The first step in this analysis is to verify empirically whether there is a negative relationship between undocumented students and educational performance. An initial (uncontrolled) examination suggests that the two are related. The correlation between overall pass rates and undocumented students is -0.22 and is -

0.11 between Latino pass rates and undocumented students. However, this first-glance assessment does not account for any of the aforementioned factors that the literature suggests influence student performance.

Table 2 presents the results from regression analysis examining both overall and Latino student pass rates – a group which includes non-citizen undocumented Latino students. This model can be thought of as a base-line model where we do not account for management. The key independent variable in this model is the percentage of *Latino students* who are "undocumented."

Interestingly, once we control for resources, environment and teacher characteristics undocumented students do not appear to have much of an effect on overall student performance. While the direction of the coefficient is negative (-0.116), it is not statistically significant at conventional levels. This is an interesting finding as it brings into question much of the political rhetoric that undocumented students have a broad negative effect on schools. This finding is relatively robust. That is, while it is possible to make the relationship statistically significant at the 0.05 level (e.g. by dropping a number of control variables), most specifications (clustered standard errors, fixed effects, random effects, year-by-year analysis, etc.) result in statistically insignificant results. All of the control variables are statistically significant at the 0.05 level except for the adjusted Latino student variable, which is significant at the 0.10 level.

For the Latino performance model, we see that increases in undocumented students appear to have a negative and statistically significant effect on Latino student performance. This suggests that in the average district, as the percentage of Latino students who are undocumented increases, Latino students as a whole perform less well. It may be that undocumented Latino students under-perform on standardized exams when compared with documented Latino students, thus bringing down the overall Latino student pass rates. This would not be surprising given the social and economic constraints presented earlier in the analysis, and seems to be consistent with the extant literature. However, without disaggregated data, it is impossible to know what the source of lower pass rates is. The substantive effects of this relationship are relatively small, however, where a one standard deviation (8.97 percent) increase in undocumented Latino students is associated with a 1.39 percent decrease in the overall Latino pass rate. All of the control variables are statistically significant except of percent African-American students (0.10 level) and percent Latino students ($p = 0.13$).

As noted above, however, this is a baseline model. An additional purpose of this research is to examine how management might moderate the relationship between undocumented students and performance. Table 3 presents the results of the interactive model where the percent of undocumented students is multiplicatively interacted with the management variables. The first column presents the results for overall student performance and the second column presents the Latino student performance model. In both cases, the coefficient for undocumented students is negative but only statistically significant at the 0.10 level. This implies that undocumented Latino students have a statistically significant (90% confidence level) negative effect on performance *when all of the management variables are simultaneously at their zero values*. For the Latino model, the relationship is similar: that is, statistically significant at the 0.10 level when the constitutive terms are at their zero values. *That is, the coefficient (b_1) changes in magnitude (and statistical significance) depending on the values of the other variables that it is interacted with.* More specifically, the conditional marginal effect of undocumented students on student performance is:

$$\frac{\partial Y}{\partial U} = \beta_1 + \beta_3 M_E + \beta_5 M_N + \beta_7 M_D$$

where the β's are the respective interactive coefficients from the model: M_E is managerial experience, M_N is managerial networking, and M_D is managerial education (degree). By substituting the relevant values for each of these variables, we can calculate the marginal effects of undocumented students. It should be noted that the standard errors associated with each of the interacted variables are also conditional on the values of the other variable(s) they are interacted with. Thus, it is necessary to calculate the conditional standard errors in order to determine if the effects of undocumented students are actually statistically significant (see Brambor, Clark and Golder 2006).

Below we discuss the marginal effects of undocumented students (*U*) on the dependent variable. That is, we are only interested in *how management moderates the effects of undocumented students*, rather than the actual relationship between management and the dependent variable. Since the baseline models concluded that undocumented students, on average, have a negative effect on Latino (and possibly overall) student performance, the core question this model seeks to address is whether management lessens this negative effect. With the exception of the managerial networking interaction, the general pattern with the interactive variables is similar in terms of direction and statistical significance. As such, the following discussion will primarily focus on Latino student performance since that is where the effect was most robust in the baseline models. Table 3 indicates that none of the interaction terms are statistically significant. However, for the purposes of this paper, we are interested in whether the effects of *undocumented students* are ever mitigated by management, rather than if the interaction terms alone are statistically significant. That is, the significance of the interaction term only tells us if the *difference in the effect of an interacted variable* is statistically significant. It does not tell us whether the actual effect of the variable on the dependent variable is statistically significant, which is where our interest lies. The most straightforward approach is to calculate the effect undocumented students have on performance (b_1) for different levels of the moderating variables. To answer this, we can examine the conditional marginal effects and standard errors.

Managerial experience was expected to help negate the negative effects undocumented students might have on performance. When the other levels of management are set at their means (0 for networking and 1.69 for degree), the predicted values of β_1 (i.e. the effect of undocumented students on Latino performance) range from -0.109 to 0.027, where lower levels of experience are associated with smaller (i.e. more negative) slopes. However, these effects are only statistically significant when managerial experience is below 11 years. That is, the expected effect of undocumented students on Latino pass rates is negative and statistically significant if the superintendent has been employed by the district for less than 11 years; however, this relationship – while still negative – is no longer statistically significant or as severe for superintendents with more than 11 years of experience in the district (about 15 percent of the cases or over 500 observations).

Figure 1 illustrates this relationship graphically. The y-axis in this case is the marginal effect of undocumented student on Latino student performance – that is, b_1. The x-axis is the conditioning or moderating variable – in this case managerial experience. The line presents the expected value of b_1 (with 95 percent confidence intervals) for different values of managerial experience holding all other variables (including the other managerial variables) at their mean. As can be seen, the effect of undocumented student on Latino student performance ranges from about -0.10 to 0.03. However, as described above, this effect is only statistically significant when managerial experience is at or below 11 years. This corresponds with where the 95 percent confidence intervals intersect zero (i.e. zero is a possible value of b_1). This supports the hypothesis positing that managerial experience with a district can minimize the negative effects undocumented students have on performance. For the overall performance model, the pattern is essentially the same, except that b_1 is never statistically significant. This suggests that when all variables are held at their mean, there is no relationship between undocumented students and overall student performance.

In nearly all recent empirical examinations, managerial networking has consistently been found to have a positive effect on a number of organizational performance indicators. Based on these findings, we hypothesize that it will also work to allay the negative effects of undocumented students on performance. At least for Latino student performance, this hypothesis finds support. When the other managerial variables are held at their means, the effect of undocumented students on Latino test scores is negative and statistically significant (ranging from -.14 to -.08) if managerial networking is at or below .248, the 66th percentile. However, this effect – while still negative – is not statistically different from zero in districts where the superintendent engages in above average levels of networking, holding the other managerial variables at their means. At the highest levels of networking (2.95), the effect of undocumented students on Latino student performance is -0.03 and is statistically insignificant. For the overall model, the effect of undocumented students never reaches statistical significance regardless of the value of networking.

The final interaction is between undocumented students and managerial education. Managerial education does not appear to significantly change the effect undocumented students have on performance in terms of magnitude or direction; however, the effect undocumented students have on performance is only statistically significant in districts with highly educated superintendents (EdD or PhD). Of particular note is that the error drastically shrinks for these high-education cases, even though they comprise only 10 percent of all cases. One possible explanation for this unexpected finding is that highly educated superintendents are more likely to be hired in more complex districts – the same districts where we would expect to see effects of undocumented students to be more prominent and more difficult to address due to environmental complexity. That is, the effect we see here may be due to endogeneity.

Conclusion

The United States is at a crossroads in the development and management of immigration policy. From Arizona to Oklahoma, states are constantly making immigration policy decisions and local units of government are attempting to implement them. Understanding the relationships between immigrants and how they affect the community and country will serve to enhance the policy making process as the political environment attempts to deal with this long-lasting yet divisive issue. This study has presented a preliminary analysis exploring the effects of undocumented students on educational performance. Perhaps the most interesting finding is that undocumented students are not strongly related to overall student performance after we control for basic control variables. This brings into question much of the political rhetoric regarding the drain undocumented student are on our social institutions.

Furthermore, this paper examines the role of management in moderating this relationship. The role of management, we find, can be an important mitigating variable in the performance relationship. In particular, managerial networking and managerial experience appear to mitigate the negative effects undocumented student appear to have on Latino student performance. What this analysis demonstrates is that management clearly matters, but management characteristics are not all created equal, that is, not all managerial variables are always consequential. In this particular case, managerial education was not as consequential as networking and experience. Again, the development of the analysis is based on the mitigating effects of managerial variables. We do not test the effects of variables directly on performance, rather, how these variables mitigate the negative overall effects of undocumented students on Hispanic educational performance. Furthermore, the management variables appear to be more important in moderating the effect of undocumented student on Latino – where the effect is more pronounced - rather than overall pass rates.

As a cautionary tale, we recognize that we are left with many uncertainties. Of particular interest here is the context. We have chosen to apply our empirical analysis to a state (Texas) that is deeply entrenched in the Hispanic culture, and has a long history of Hispanic immigration, both legal and illegal. While we believe the theory is sound, future empirical research in states with a more recent boom in immigration, providing a much different context will offer a richer field of study. We are also keenly aware that the application to superintendents may seem too far removed for many. Again, we are most interested in applying the theory of management to top-level managers, and the structure of the school district provides an environment where we can see the hierarchical levels clearly defined, as well as the murky, environmental interactions. Our results seem to indicate that in fact, to the extent that undocumented students affect performance, that management matters.

Variable	Description	Data Source	Mean	Std. Dev.	Min	Max
Undocumented Students of Total Students	Undocumented Latino Students / Total Enrollment	TEA	1.58	2.45	0	28.47
Adjusted Undocumented Students of Latino Students	(Undoc. Latino students / total Latino students) – (Undoc. non-Latino students / total non-Latino students)	TEA	9.12	8.97	0	64.57
Managerial Experience	Number of years experience in District	M-O	5.80	5.43	0	40.00
Managerial Networking	Composite score based on interaction with external	M-O	-0.30	1.04	-2.93	2.95
Managerial Education	SI Degree (0=BA; 1=MA; 2=SI Cert.; 3=EdD; 4=PhD)	M-O	1.69	1.05	0	4.00
Revenue per Pupil (in $1000)	Total Revenue (in $1000)/Total Enrollment	TEA	8.18	2.86	1.76	71.08
State Aid per Pupil (in $100s)	Total State Aid (in $100)/Total Enrollment	TEA	14.68	22.77	0	222.88
% Instructional Expenditures	% of total expenditures spent on instructional purposes	TEA	52.62	4.93	7.00	74.00
Attendance Rate	Average daily attendance rate (annual)	TEA	96.02	0.78	91.20	98.70
% Students in Gifted/Talented	% of total students enrolled in GT classes	TEA	7.45	3.23	0	57.00
% Students in Bilingual	% of total students taking bilingual classes	TEA	6.63	8.05	0	62.80
% Low-Income Students	% of total students who receive free or reduced lunch	TEA	49.10	18.65	0	100
% Latino Students (Adjusted)	(% of total students who are Latino) – (% Undocumented Latino Students of Total Students)	TEA	27.95	25.44	0	99.60
% African-American Students	% of total students who are African-American	TEA	8.37	11.48	0	82.00
Student-Teacher Ratio	Total enrollment/total FTE teachers	TEA	12.51	2.37	2.60	30.47
Teacher Turnover	Annual teacher turnover (percentage)	TEA	16.99	8.18	0	100
Average Teach Experience	Average number of years of teaching experience	TEA	12.33	2.15	2.60	22.45
Teachers with Advanced Degrees	% of teachers with advanced degrees (more than BA)	TEA	17.82	9.23	0	96.80
Latino Teachers	% of teachers who are Latino	TEA	8.99	18.51	0	100

References

Arizona Senate Bill 1070. LS 49. 2nd Regular Session. 2010.

Bailey, Jennifer, Bill, Emerson Erin, Fitzgerald, 2010. "Immigration-Related Laws and Resolutions in the States (January-June 2010." National Conference of State Legislators, Immigrant Policy Project, July 2010. http://www.ncsl.org/default.aspx?tabid=20881.

Garcia, E. E. (2001) *Hispanic Education in the United States,* Lanham: Rowman and Littlefield Publishers, Inc.

Leal, D., Martinez, V. and Meier, K. (2004) "The Politics of Latino Education: The Biases of At-Large Elections." *Journal of Politics 66: 1224-1244*

Meier, K. J. and O'Toole, L. (2002) "Public Management and Organizational Performance: The Effect of Managerial Quality." *Journal of Policy Analysis and Management* 21:629-643.

Meier, Kenneth J. and Laurence O'Toole. 2003. "Public Management and Educational Performance: The Impact of Managerial Networking." *Public Administration Review* 63: 689-699.

Meier, Kenneth. J. and Laurence O'Toole. (2004) "Desperately Seeking Selznick: Cooptation and the Dark Side of Management in Networks." *Public Administration Review* 64: 681-693.

Meier, Kenneth J. and Stewart, Jr. J. (1991) *The Politics of Hispanic Education.* Albany: SUNY Press.

Ochoa, A. (2003) "The Struggle of Access: The Achievement Trends of Latino Youth in Middle and High School." In V.I. Kloosterman (ed) *Latino Students in American Schools,* London: Praeger.

Osborne, D. and Gaebler, T. (1992) *Reinventing Government.* Reading, Mass: Addison-Wesley.

O'Toole, Jr., L. J. (1997) "Treating Networks Seriously: Practical and Research-Based Agendas in Public Administration." *Public Administration Review* 57: 45-52.

O'Toole, Jr., L. J., and Meier, K.J. (1999) "Modeling The Impact of Public Management: Implications of Structural Context." *Journal of Public Administration Research and Theory* 9: 505-526.

Plyler v. Doe. 1982. 457 U.S. 202.

Seldon, S. 1997. *The Promise of Representative Bureaucracy: Diversity and Responsiveness in Government Agencies*. Armonk, NY: M.E. Sharpe.

Terrill, Randy. 2010. "*House votes to determine actual cost of illegal alien education."* http://www.okhouse.gov/OkhouseMedia/news_story.aspx?NewsID=3498 *(October 2010).*

Table 2. Undocumented Students and Student Test Performance

	All Student Pass Rate	Latino Student Pass Rate
Undocumented Latino Students [a]	-0.116†	-0.155**
	(0.062)	(0.022)
Revenue per Pupil ($1000s)	0.124*	0.299**
	(0.060)	(0.113)
State Aid per Pupil ($100s)	-0.066**	-0.070**
	(0.010)	(0.015)
% Instructional Expenditures	-0.054*	-0.076*
	(0.026)	(0.038)
Attendance Rate	3.367**	3.484**
	(0.146)	(0.222)
% Students in Gifted/Talented Classes	0.172**	0.111*
	(0.033)	(0.046)
% Students in Bilingual Classes	-0.070**	-0.124**
	(0.023)	(0.025)
% Low-Income Students	-0.150**	-0.108**
	(0.011)	(0.015)
% Latino Students (Adjusted)	-0.015†	-0.009
	(0.008)	(0.013)
% African-American Students	-0.174**	-0.027†
	(0.011)	(0.016)
Student-Teacher Ratio	0.349**	0.567**
	(0.073)	(0.116)
Teacher Turnover	-0.175**	-0.179**
	(0.017)	(0.026)
Average Teacher Experience	0.222**	0.219*
	(0.055)	(0.086)
% Teachers with Advanced Degrees	0.062**	0.068**
	(0.014)	(0.021)
% Latino Teachers	-0.057**	0.027*
	(0.010)	(0.012)
Constant	-235.843**	-258.838**
	(14.604)	(21.996)
Observations	6,188	5,770
R-squared	0.731	0.569

Coefficients for individual years not shown.

Robust standard errors shown in parentheses. *** p<0.01, ** p<0.05, † p<0.1

[a] The undocumented student variable is the percent of *all students* who are Latino and undocumented for the All Student Model, and is the percent of Latino students who are undocumented for the Latino model.

Table 3. Undocumented Students, Management and Latino Student Test Performance

	All Student Pass Rate	Latino Student Pass Rate
Undocumented Latino Students	-0.248†	-0.098†
	(0.131)	(0.054)
Managerial Experience	0.083**	0.130*
	(0.025)	(0.053)
Non-Citizen x Managerial Experience	0.015	0.002
	(0.013)	(0.004)
Managerial Networking	0.375*	0.131
	(0.161)	(0.294)
Non-Citizen x Managerial Networking	-0.028	0.012
	(0.058)	(0.021)
Managerial Education	0.127	0.122
	(0.135)	(0.266)
Non-Citizen x Managerial Education	0.050	-0.003
	(0.057)	(0.021)
Revenue per Pupil ($1000s)	0.202*	0.507*
	(0.088)	(0.208)
State Aid per Pupil ($100s)	-0.071**	-0.067**
	(0.012)	(0.021)
% Instructional Expenditures	-0.011	-0.043
	(0.036)	(0.055)
Attendance Rate	3.380**	3.481**
	(0.194)	(0.325)
% Students in Gifted/Talented Classes	0.079†	0.055
	(0.043)	(0.067)
% Students in Bilingual Classes	-0.085**	-0.162**
	(0.030)	(0.034)
% Low-Income Students	-0.154**	-0.099**
	(0.014)	(0.022)
% Latino Students (Adjusted)	-0.027**	-0.009
	(0.010)	(0.018)
% African-American Students	-0.182**	-0.031
	(0.015)	(0.021)
Student-Teacher Ratio	0.297**	0.558**
	(0.089)	(0.163)
Teacher Turnover	-0.173**	-0.218**
	(0.024)	(0.037)
Average Teacher Experience	0.182**	0.180
	(0.067)	(0.121)
% Teachers with Advanced Degrees	0.074**	0.074*
	(0.017)	(0.030)
% Latino Teachers	-0.035*	0.045*
	(0.015)	(0.018)
Constant	-238.80**	-238.8**
	(19.37)	(19.37)
Observations	3,332	3,152

|		
R-squared	0.760	0.587

Coefficients for individual years not shown.

Robust standard errors shown in parentheses. *** $p<0.01$, ** $p<0.05$, † $p<0.1$

[a] The undocumented student variable is the percent of *all students* who are Latino and undocumented for the All Student Model, and is the percent of Latino students who are undocumented for the Latino model.

Figure 1. An Illustrative Example of the Effect of Undocumented Students Conditional on Managerial Experience
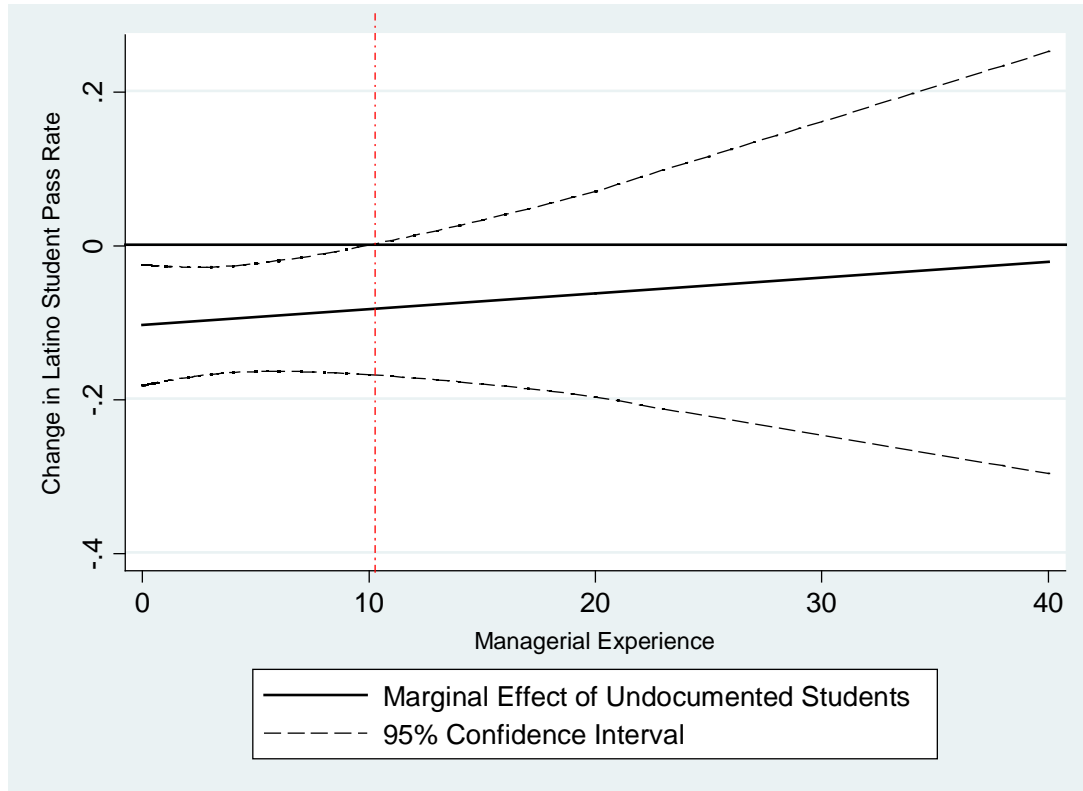
[1] An appendix containing more details on the construction of these measures as well as notes regarding specification issues is available from the authors upon request.

[2] This measure, then, is the percent of Latino students who did not provide SSNs minus the percent of non-Latino students who did not provide SSNs; that is:

Adjusted Undocumented Measure = (count of undocumented Latino students / total Latino students) – (count of undocumented non-Latino students / total non-Latino students).

Negative values (i.e., districts with higher non-Latino undocumented percentages than Latino undocumented percentages were recoded as 0. It should be noted that the results were not affected when other variations of this measure were used (i.e., the unadjusted measure, not recoding negative values as zero, etc.).

[3] We would like to thank Ken Meier and Larry O'Toole for generously providing us these data.

[4] A simple measure of the percent of all Latino students would also include undocumented Latino students. This could create multicolinearity and attenuate the estimated impact of undocumented student performance. For this reason, we adjust the percent Latino variable so undocumented student are not double-counted. We believe that simply excluding the Latino student variable, however, is inappropriate since it is significantly related to performance. By excluding it in the model, the undocumented student variable would pick up much of the covariance between Latino student and performance, resulting in a potentially spurious relationship. Thus, we believe the purged Latino student measure is the best approach. That said, when the variable is excluded from the model, the significance of the undocumented students variable remains at the 0.10 level (b = -.110, .s.e. = 0.062, p = 0.076).