Schools' Mental Health Services and Young Children's Emotions, Behavior, and Learning

Randall Reback*
Department of Economics
Barnard College, Columbia University
rr2165@columbia.edu

Abstract: Recent empirical research has found that children's non-cognitive skills play a critical role in their own success, that young children's behavioral and psychological disorders can severely harm their future outcomes, and that disruptive students harm the behavior and learning of their classmates. Yet relatively little is known about wide-scale interventions designed to improve children's behavior and mental health. This is the first nationally representative study of the provision, financing, and impact of school-site mental health services for young children. Elementary school counselors are school employees who provide mental health services to all types of students, typically meeting with students one-on-one or in small groups. Given counselors' non-random assignment to schools, it is particularly challenging to estimate the impact of these counselors on student outcomes. First, cross-state differences in policies provide descriptive evidence that students in states with more aggressive elementary counseling policies make greater test score gains and are less likely to report internalizing or externalizing problem behaviors compared to students with similar observed characteristics in similar schools in other states. Next, difference-in-differences estimates exploiting both the timing and the targeted-grade-levels of states' counseling policy changes provide evidence that elementary counselors substantially influence teachers' perceptions of school climate. The adoption of state-funded counselor subsidies or minimum counselor-student ratios reduces the fraction of teachers reporting that their instruction suffers due to student misbehavior and reduces the fractions reporting problems with students physically fighting each other, cutting class, stealing, or using drugs. These findings imply that there may be substantial public and private benefits derived from providing additional elementary school counselors.

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INTRODUCTION

Several social and economic concerns might justify substantial investments in mental health interventions for young children. Interventions may be especially cost effective if they focus on young children and on non-cognitive skills (Heckman, 2000). Students' non-cognitive skills plays a critical role in their own success (Heckman, Stixrud, and Urzua, 2006), young children's behavioral and psychological disorders can severely affect their outcomes (Nagin and Tremblay, 1999; Currie & Stabile, 2006, 2007), and disruptive students harm the behavior and learning of their classmates (Figlio, 2007; Aizer, 2008; Carrell and Hoekstra, 2008; Fletcher, 2009, 2010; Neidell and Waldfogel, forthcoming). At least one in five young children "have mental disorders with at least mild functional impairment" (U.S. Dept. of Health & Human Services, 1999), and some researchers estimate that 80 percent of children needing mental health services fail to receive these services (Kataoka et al., 2002). Mental health interventions could potentially improve a student's behavior, emotional well-being, inter-personal skills, and ability to cope with problems—leading to improved physical health, academic performance, and future earnings. In addition to any private benefits enjoyed by the recipient of the intervention, there may be valuable spillover effects on peers, classmates, teachers, and family members.

Schools may serve as convenient locations to effectively reach the young children most in need of mental health interventions (Atkins et al., 2003; Weist et al., 2003). Despite increasing attention in the academic literature and popular media to topics such as children's mental health problems, school safety, student bullying, and disruptive classroom behavior,[1] there is little prior evidence concerning the provision, financing, and effectiveness of school-site mental health services for young children. Elementary school counselors in the U.S. are school district employees who, unlike middle school and

[1] Parents, school administrators, and politicians have increasingly emphasized the need to reduce bullying and to improve children's physical safety on school grounds. The federal No Child Left Behind Act (NCLB) requires states to come up with a list of unsafe schools and to allow students to transfer out of schools that have been deemed "persistently dangerous." NCLB also gives students the right to transfer schools if they have been the victim of a violent crime. Numerous states publish annual school report cards that include the number of serious disciplinary incidents occurring at each public school. In the wake of incidents of school violence, many parents and educators argue that there are too few counselors in schools (Winter, 2005).

high school counselors,[2] deal almost exclusively with students' behavioral and mental health issues. Counselors typically meet with students either one-on-one or in small groups (Adelman & Taylor, 2003), though some counselors will work with entire classrooms of students or assist teachers with lessons promoting students' social and emotional development. Certification requirements for public school counselors vary only slightly across states, with most states requiring counselors to possess a graduate degree in counseling or school psychology (*Requirements for Certification…*, 2001; ASCA, 2006). As of the 2001-02 school year, there were more than 40,000 elementary school counselors employed in the United States, but more than 30 percent of all public school districts offering elementary schools did not employ any elementary-level counselors (based on Common Core of Data, 2005).

Researchers lament that "there are very large portions of the country where school-based mental health and empirically supported treatments are completely absent" (Evans & Weist, 2004). Funding for school counseling could be reduced in the near future as districts are forced to cut their budgets due to financial pressure and as schools respond to school accountability programs required under the *No Child Left Behind Act* (Whitson, 2002; Zins et al., 2004). States and districts might decrease funds for counseling programs because they can cut these programs with relatively little political fallout and they may believe that counseling programs are not strongly related to students' test scores. Counseling cutbacks may be particularly common in places where budgeting decisions are decentralized and where superintendents and principals face significant pressure to simultaneously decrease spending and improve students' test scores. In many large urban districts, such as New York City, elementary school principals have recently received increased control over budgeting so that they must sacrifice other school-level

[2] Middle and high school counselors are also concerned with students' course selection and their entry into postsecondary education or careers. Studies of the role of high school counselors include Mau et al.'s (1998) use of the National Education Longitudinal Survey to examine students' perceptions of their counselors' expectations concerning students' postsecondary plans, as well as small-scale studies of how counselor-assisted course planning can help middle school or high school students select appropriate courses (for example, Peterson et. al, 1999; Schlossberg et al., 2001). There is a detailed literature describing high school counselors' efforts to improve students' educational attainment and mental health—especially counselors' role in reducing dropout and suicide rates. I am not aware, however, of any large-scale studies examining these issues using plausibly exogenous variation in the quantity or quality of high school counselors; this is an important area for future research.

services if they choose to offer any counseling to children. Many school counselors are concerned about the future of their profession in light of schools' shifting priorities. Shortly after the passage of the *No Child Left Behind Act*, the American School Counselor Association adopted a new national model for counselors that emphasized counselors' roles in supporting students' academic growth (ASCA, 2003).

Combining multiple data sets, including newly assembled state-level policy data, this research project is the first national study of the provision, financing, and effects of elementary school counselors. Estimates reveal that about 13 percent of U.S. public school students receive school-site counseling services during third grade. Children who are male, non-Asian, live with only one parent, or have parents that recently became divorced or separated are much more likely to receive counseling. Children are much more likely to receive counseling if their state directly subsidizes counselors or even simply recommends a minimum counselor per student ratio.

Controlling for students' initial test scores during the fall of kindergarten and for various other factors, greater availability of school-site elementary counseling services due to these state policies is associated with higher student test scores and better mental health and behavior among third grade students, as measured by students' survey responses. Inter-state variation in counselor policies may be correlated with omitted state-level variables affecting student outcomes, so these descriptive findings alone should not lead to strong causal claims.

This paper's main analyses examine how changes in states' elementary school counselor policies over time have influenced school climate, as measured by teachers' responses to numerous survey questions. While the identification of these counselor effects exploits the timing of states' policy changes, additional analyses suggest that these estimates are unlikely to be inflated by endogenous policy adoption or omitted state-level variables. Observable school resources unrelated to counseling—operating revenues per pupil and elementary-teachers-per-pupil—actually decreased in states that adopted policies compared to other states. Also, the baseline difference-in-differences results are robust to additional analyses employing a triple differences approach using changes in high school teachers' responses to further control for general statewide trends in teachers' attitudes. The adoption of elementary school counselor

policies is one of the few instances in which states change elementary schools' resource allocation without directly changing resources at high schools. Both difference-in-differences and triple differences estimates suggest that adopting a counselor subsidy or minimum counselor–student ratio reduces the fraction of teachers reporting that their instruction suffers due to student misbehavior and reduces the fractions reporting problems with students physically fighting each other, cutting class, stealing, or using drugs.

The next section reviews the literature related to elementary school counseling and young children's mental health. The third section describes states' public elementary school counselor policies, examines the prevalence of elementary counseling among various types of children and public schools in the United States, and then examines the relationship between state counseling policies and the fraction of students receiving counseling services. The fourth section examines the effects of the adoption of counseling policies on teachers' views concerning the extent to which student misbehavior is a problem at the school, and the final section concludes with a brief discussion of cost effectiveness.

RELATED LITERATURE

This paper's analyses relates to two literatures: (i) studies of the rates of children's mental health problems, and (ii) studies of the impact of school-site interventions and services on students' test scores, behavior, and mental health status.

Rates of mental health problems

Some of the most comprehensive studies of mental health problems and treatments among young children in the United States come from the MECA survey—Methodology for Epidemiology of mental disorders in Children and Adolescents. This survey examined children's mental services in four cities, asking parents extensive questions about the precise nature of their children's mental health services and health insurance status. In the MECA sample, 13 percent of children between the ages of 9 and 17 had an anxiety disorder causing at least mild impairment, while 6.2 percent had mood disorders, 10.3 percent had disruptive disorders, and 2.0 percent had substance-use disorders (U.S. Dept. of Health & Human

Services, 1999). Children and adolescents without private health insurance were just as likely to receive mental health services as those with private insurance, often because the uninsured used services in non-clinical settings such as schools and welfare agencies (Glied et al., 1998).

In another study, Sturm, Ringel and Andreyeva (2003) use a multi-state data set, the Urban Institute's National Survey of America's Families (NSAF), to compare mental health need with service use of 6-17 year olds. The NSAF asked parents how often their children used mental health services during the previous twelve months, but it did not ask parents to differentiate between service received in clinical versus non-clinical settings. Sturm, Ringel and Andreyeva find a large amount of between-state variation in rates of children's need for services, service-use, and unmet need.

Evidence concerning school-site mental health interventions' effects on students' academic achievement and behavior

Two prior studies investigate the impact of student-counselor ratios in elementary schools on student outcomes using plausibly exogenous variation in these ratios. Carrell and Carrel (2007) exploit cross-semester variation in the counselor-student ratios in schools across a large Florida school district, variation that is partially influenced by the University of Florida's school counseling graduate students in their practicum and internship assignments. Carrell and Carrell find that a greater counselor-student ratio leads to both fewer disciplinary incidents and a lower rate of recidivism for students who already committed a disciplinary incident. Reback (2010) conducts regression discontinuity analyses exploiting Alabama's statewide policy of fully funding elementary schools' counselors with allocations based on the schools' prior year enrollments, with discrete cutoffs for additional half-time counselor appointments. Greater counselor subsidies in Alabama decreased rates of student suspensions and weapon-related incidents but did not have a substantial effect on average student test scores. Given these previous studies' identification strategies, their findings may reflect the effects of temporary changes in counselor availability, whereas the analyses in this paper may capture the effects of more permanent changes.

Reviews of earlier, small-scale studies of the effect of counseling interventions on young students' academic outcomes suggest that it is difficult to draw strong conclusions (Prout & Prout, 1998;

Whitson & Sexton, 1998). These reviews discuss the limitations of even the best executed randomized studies, such as their short durations, small sample sizes, and subjective outcome measures. Stage and Quiroz's (1997) meta-analysis of non-experimental studies of interventions targeting disruptive classroom behavior reveals that the majority of these interventions were associated with a decline in disruptive behavior, measured either by teacher rating scales or ethnographic observation. Again, it is difficult to generalize from the conclusions of these studies.[3]

ELEMENTARY COUNSELING SERVICES IN UNITED STATES PUBLIC SCHOOLS

State counselor policy data

To obtain information on states' elementary school counselor policies, I surveyed state administrators about elementary school counselor finance policies. During the fall of 2003 and winter of 2004, my research assistants and I emailed and called members of the American Education Finance Association who were listed as working for their state's department of education. We inquired whether school districts in their state received state funding that was specifically targeted for the use of counselors or school psychologists and that was distinct from special education funding.[4] We also inquired whether districts (or schools) in their state were required to employ a minimum number of counselors per elementary school student. Next, we asked them about their states' historical elementary counselor policies and compared their responses with the responses of other members of their state's department of education, as well as with information published by the National Association of School Boards (2005), the American School Counselor Association (ASCA, 2005), and the earlier survey results of Glosoff and

[3] See Zins et al. (2004) for an excellent review of the strengths and weaknesses of specific types of emotional learning programs for young children.

[4] The specific questions initiating these inquiries were: (1) In your state, do districts receive funding from the state that is specifically targeted for the use of counselors or school psychologists? (Or, alternatively, does money spent on counselors come out 1-for-1 from other parts of a district's budget?) (2) If districts do receive targeted funding for counselors/psychologists, is this funding distinct from special education funding or is it part of special education funding?

Koprowicz (1990). Finally, we compared our information with relevant state legislative code. Any inconsistencies were ultimately resolved through additional communications with state officials.

Elementary school counselor policies vary tremendously across states. Table 1 describes states' policies directly subsidizing elementary school counselors during the 2001-02 school year. Only five of the forty-eight continental states provided aid specifically for elementary school counselors: Alabama, Delaware, Georgia, Nevada, and Texas. Four of these states provided subsidies to all elementary schools, while Texas awarded competitive grants limited to schools in 64 districts.[5]

Twelve additional states imposed mandatory minimum counselor-student ratios that apply to elementary-level grades without state aid specifically targeted to counselors. These mandates force districts to allocate some of their state revenues toward elementary counselors. Four states required district-wide minimum counselor-student ratios for all grades combined, (AK, NC, ND, & OK), while Louisiana imposed district-level minimum ratios specifically for students in elementary grades. The other seven states imposed school-level as opposed to district-level minimum ratios for elementary schools (ID, MO, MT, NH, SC, VT, & VA).

Seven other states simply recommended that elementary schools maintain a minimum counselor per pupil ratio. Connecticut, Iowa, and Wisconsin suggested that elementary schools should meet the American School Counselor Association's recommendation of one counselor per 250 students, Michigan and Maine suggested that the ratio be one per 300 and one per 350 respectively, and Indiana suggested a minimum ratio of 1 to 600. Tennessee's state education finance formula included allocations considered sufficient for districts to hire one counselor per 500 students, but this ratio was simply a recommendation; state aid was fungible and schools were not required to hire any counselors. Interestingly, the suggested ratios often call for more counselors per pupil than in states with official policies funding or requiring counselors, implying that some leniency is often required when forcing schools to devote resources to counselors.

[5] Texas' grant program was later eliminated due to state budget cuts.

The remaining 24 continental states did not subsidize counselors or require or recommend any minimum counselor-elementary student ratio. Many school districts in these states do not employ any elementary-level counselors, especially in California, Illinois, Minnesota, and New York which collectively employ elementary counselors in only about 40 percent of their relevant districts (based on Common Core of Data, 2005). A survey initiated by the California state government estimated that the elementary counselor-per-student ratio in California was as low as one counselor per 3,009 students (Study of Pupil Support Ratios, Programs, and Services, 2003). As described below, the reduced availability of elementary counselors in these states does not appear to be offset by other types of subsidies or mandates for mental health services—e.g., special education services, mental health coverage from private health insurance providers.

ECLS-K data

The descriptive analyses in this paper use a national sample of more than 9,000 third grade public elementary school students found in the Early Childhood Longitudinal Survey-Kindergarten Cohort (ECLS-K). The ECLS-K (2004) is a panel data set that began by sampling kindergarten students during the 1998-99 school year, and then followed up on them in the spring of 2000 (first grade) and the spring of 2002 (third grade). The ECLS-K used stratified sampling methods, with schools containing classrooms randomly selected from counties or county areas and then kindergarten students randomly selected from these schools (ECLS-K, 2005). Some first grade students were added during the spring 2000 sample wave to account for first grade students attending schools that did not offer kindergarten classes (ECLS-K, 2005). The data set assigns a sample probability weight to each observation so that, even with some attrition and missing values for certain survey components, researchers can weight their analyses to attempt to find estimates that are nationally representative for all children attending kindergarten during 1998-99 or for all children attending first grade during 1999-2000 (ECLS-K, 2005).

The ECLS-K analysis below focuses on outcomes for spring of 2002 when the vast majority of the ECLS-K sample attended third grade. Although approximately ten percent of the sample attended second or fourth grade that year due to retention or early promotion, I keep these off-grade students in the

sample so that the estimates are nationally representative of the first grade class of 1999-2000 and so that the estimates are not biased from selection issues. For ease of description, I refer to the 2001-02 observations of these students as "third grade" observations.

The ECLS-K outcome of interest for this paper is teachers' responses to the survey question asking whether their third grade students received "individual or group counseling from a trained professional" at the school during the school day (ECLS Spring 2002 Teacher Questionnaire, 2002).[6] Teachers gave valid responses to this question for approximately 9,200 public school students in the sample, spread across roughly 3,880 classrooms in 1,610 schools.[7] Teachers' responses suggest that 13.5 percent of third grade ECLS-K students received counseling. Teachers should have a relatively accurate sense of whether their students are receiving school-site services, particularly among third grade students who typically stay with the same teacher during most of the school day.[8]

Given that the elementary school counselor policies examined in this paper are policies designed to make greater counseling services available to the general student population, it may be important to confirm that states with these policies do not tend to have more or less extensive special education services than other states. Fortunately, the ECLS-K contains additional information for any student with an individualized education program (IEP), a record required by federal law for each student receiving special education or related services. For students with IEP's, the ECLS-K contains survey responses from a special education teacher about the diagnoses of the student's disabilities and the prescribed services to address these needs.[9]

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[6] I am very grateful to Dr. Jerry West and his colleagues at the National Center for Education Statistics for granting my request to add this specific question to the third grade teacher survey. Similar information is not available in the earlier waves of the ECLS-K, (kindergarten and first grade).

[7] To comply with restricted-use data guidelines, these and all other sample sizes in the paper have been rounded to the nearest 10 students, classrooms, or schools.

[8] Teachers' responses in the ECLS-K concerning school-site counseling are likely to be more accurate than parents' responses used in other surveys. One study of the MECA data showed inconsistent responses given by adolescent children and their parents (Leaf et al., 1996).

[9] Using the IEP portion of the ECLS data, Schneider & Eisenberg (2006) examine patterns of ADHD diagnoses and find that these diagnoses are more prevalent in states with more extensive school accountability programs.

Rates of counseling of ECLS-K third grade students

Using the ECLS-K data and appropriate cross-sectional sample weights, Figure 1a reports estimates of the rates of counseling for various types of third graders attending U.S. public schools. For each category, the left-most group is the baseline category and the remaining groups' bars are shaded more darkly if the difference in rates of counseling between this group and the baseline group is statistically significant.

There is moderate variation in rates of counseling across racial groups, with 14.0 percent of White students, 15.9 percent of African American students, 9.8 percent of Hispanic students, 6.8 percent of Asian students, and 15.8 percent of 'other race' students receiving counseling. The lower rates of counseling among Hispanics, and even lower rates among Asians, are each different from the rates among White students at the .01 level of statistical significance. Asian children's cultural heritages often tend to discourage externalizing problems and seeking help for problems (Ho et al., 2007; Serafica, 1999; Yeh et al., 2004), so this could at least partially explain the lower rates of counseling among Asian elementary students.

Children's family structure is also correlated with rates of receipt of counseling. Students are more likely to receive counseling if their birth-parents were not married when the student was born (16.9 percent counseling rate versus 11.7 percent counseling rate) or there was only one parent in the student's household when the student was in first grade (15.8 percent versus 11.8 percent). Whether the student was an only child, had one or two siblings, or had more than two siblings when the student was in first grade was not associated with substantial or statistically significant differences in rates of counseling during third grade. The type of after-school care received by students during first grade was also not associated with statistically significant differences in counseling, though the rate of counseling was slightly higher

(14.2 percent) for students who attended a daycare center after school or were supervised by a non-relative adult (15.0 percent).[10]

Changes in household structure between the spring of first grade and the spring of third grade account for relatively large differences in rates of counseling. Either the loss of a parent from the household (20.0 percent counseling rate) or the addition of a parent to the household (15.8 percent) was associated with higher rates of counseling. These trends are related to higher rates of counseling among students whose parents recently became separated or divorced (17.6 percent). As discussed by Weissbourd (1996), "soon after divorce, many children are flooded with anger, anxiety, and grief (54)" and mental health interventions might address the diverse emotional needs of children experiencing recent changes in family structure. Changes in the number of siblings in the household mildly increase students' likelihood of receiving counseling, though it is difficult to interpret these differences because one cannot differentiate between the many reasons for changes in the number of siblings (such as births, moving out due to graduation, moving out due to divorce). Changing residential locations can pose challenges to young children and is associated with unstable household structure, so it is not surprising that students who changed residences at least once between the spring of first grade and the spring of third grade were more likely to receive counseling (16.9 percent versus 12.5 percent). Hanushek et al. (2004) find that children who change public schools perform worse on exams and that overall student performance is worse when a larger share of students are new to their school.

Counseling services also seem to accompany special education services. More than 26.4 percent of third grade students with Individualized Education Plans (IEP's), formal documents establishing eligibility for special education services, receive counseling services. Not surprisingly, counseling rates are even higher (62.7 percent) if a student's IEP specifically cites a need to modify behavior. The reported counseling rates for special education students may be due to teachers observing these students meeting

[10] Relatively little is known about the impact of relative versus non-relative after school supervision, and the slightly higher rates of counseling among students attending center-based after-school care may reflect affluent parents preferring to use a mix of after-school activities rather than center-based programs (Waldfogel, 2006).

with special education psychologists, as opposed to meeting with school counselors or school psychologists serving the general student population. It is therefore worth noting that the same explanatory variables listed above continue to predict receipt of counseling services if one excludes special education students from the sample.

Figure 1b displays rates of counseling broken down by state elementary school counselor policy and by characteristics of third graders' schools and school districts. Counseling rates are substantially higher in states that recommend that schools adopt a minimum number of counselors per student (17.7 percent) and are especially high in states that directly subsidize elementary counselors (20.4 percent). The strong effect of state subsidies is not surprising; these subsidies often may exceed the amount of local resources that would have otherwise been devoted to counselors, and there also may be a "flypaper effect" where this categorical aid sticks to where it is thrown.[11]

In terms of geography, counseling rates were slightly lower in the Northeast and West regions of the United States and counseling rates were slightly higher in medium-sized cities than in large cities, small cities, or rural areas. Counseling rates are relatively high in middle class communities, defined by either household income or the fraction of adults with bachelor's degrees. Counseling rates are lowest in districts with moderate operating expenditures per pupil but similar across high-spending and low-spending districts. This trend might result from the greater resources of higher spending districts and the greater perceived need for counseling services in lower spending districts.

While Figures 1a and 1b reveal the raw, student-level relationships between rates of counseling and various characteristics, the next analysis explore whether each of these factors influence the school-level percentage of students receiving counselors conditional on the other factors. This analysis will also

[11] Hines and Thaler (1995) review the flypaper effect literature, where most studies find that local and state governments increase expenditures by at least 40 percent of the amount of block grants. School districts significantly increase expenditures as a result of state grants (Dee & Levine, 2004; Duncombe & Yinger, 1998). Fisher and Papke (2000) review studies of local government responses to educational grants, finding that most categorical grants are somewhat fungible but still lead to increased local expenditures in the targeted area.

provide the "first stage" for the next section's analysis of the relationships between counselor availability and student outcomes. I estimate the following regression model for school *j* in state *s*:

$$(1) \qquad \%Counseled_{js} = \gamma_0 + C_s\gamma_1 + X_j\gamma_2 + \varepsilon_{js}$$

where $\%Counseled_{js}$ is the percentage of third-grade students receiving counseling at school *j*, and C_s is a vector of state-level control variables including counselor policies, the statewide fraction of public school spending funded by state tax revenues, and Census region fixed effects. The X_j vector includes assorted school-level variables including the school-level variables used in Figure 1b as well as the estimated school-level mean variables for the student-level variables listed in Figure 1a. These school-level independent variables also include controls for student ability: linear and squared terms for mean student scaled performance on math and reading assessments conducted during the fall of kindergarten. All school-level means and proportions of students are computed by finding weighted averages of student-level variables based on the appropriate sampling weights. The school-level observations are also weighted so that the results are nationally representative of third grade students who attended first grade during the 1999-2000 school year.

Table 3 presents summary statistics of all of the independent variables from equation (1), as well as their estimated coefficients and corresponding standard errors and p-values. Direct subsidies of elementary counselors continue to have the strongest effect on counseling rates of any state policy, as they are associated with a more than 10 percentage point increase in the percentage of students receiving counseling compared to schools in states without any elementary counseling policy. Requiring or recommending a minimum ratio of counselors per students is also associated with increased counseling coverage, though the estimated effects are not as statistically significant as the impact of a subsidy policy. As with the raw correlations presented in Figure 1b, the recommended ratios appear to induce greater counseling coverage than the required ratios, which may reflect the higher ratios given in recommendation states than in required ratio states. The three counselor policy variables are jointly significant at the .001 level.

Controlling for all of the other independent variables in Table 3, there is greater counseling coverage in schools that are located in states with centralized public school financing, located in districts with lower fractions of adults who are high school dropouts, and not located in large cities. Counseling coverage also substantially increases if a higher fraction of students' parents became divorced or separated between first and third grade, with a one percentage point increase in this fraction associated with about a 1.3 percentage point increase in counseling coverage. This is the only type of household composition variable for which a one percentage point increase in the fraction of students in that category leads to a more than one percentage point increase in the fraction of students receiving counseling. Schools' counseling coverage is unrelated to students' *overall* skill levels measured in the fall of Kindergarten assessments, though coverage is greater in schools where students' initial math skills are relatively strong compared to their reading skills.

STATE COUNSELOR POLICIES AND STUDENT OUTCOMES: EVIDENCE FROM THE ECLS-K

Given the strong relationship between state counselor policies and the provision of counseling services, the next step is to examine the link between greater counselor availability and student outcomes. If between-state variation in counselor policies were exogenously determined and unrelated to important, omitted state-level variables, then one could use these policies as instrumental variables in a model revealing the causal effect of counselor availability on student outcomes. There are few obvious links between stronger counselor policies and observed state-level characteristics influencing student outcomes.[12] Reduced-form evidence does not suggest a link between states' elementary counselors and other mental health policies; for example, states with different types of counselor policy (or no policy at

[12] Western states are less likely to adopt elementary counselor policies and smaller states are more likely to adopt policies. Aside from that, states' elementary counselor policies do not appear to be related to variables that would have obvious systematic effects on student outcomes. The fall kindergarten test scores of students in the ECLS-K data are fairly similar across states with different policies; states with counselor subsidies actually have slightly lower fall kindergarten math scores than all other types of states, while states with recommended counselor-student ratios have higher scores in math but not in reading.

all) are roughly equally likely to require insurers to offer mental health services.[13] Estimating two-stage instrumental variables models may be interesting solely for descriptive purposes, as they will at least reveal the correlations between greater induced availability of counseling and student outcomes.

Table 4 displays estimated second-stage coefficients of the predicted values for $\%Counseled_{js}$ from two-stage least squares models using equation 1 as the first-stage equation with the counselor policy indicator variables omitted from the second stage. These regression models continue to uses data that have been aggregated from the child level to the school level, so the coefficients might be influenced by both direct and indirect effects of counselor availability on students. For ease of comparison, the effect sizes are reported as the standard deviation change in the dependent variable associated with a five percentage point increase in the fraction of students receiving counseling at the school. Based on the first-stage analyses, this five percentage point increase is a plausible effect of a counseling policy change.

Greater counseling availability due to aggressive state policies is associated with higher third grade test scores in both math and reading, even after controlling for other variables such as fall kindergarten test scores. A five percentage point increase in counselor availability is associated with a .11 standard deviation increase in the school-level mean standardized math score and a .07 standard deviation increase in the school-level mean standardized reading score, with both estimates statistically significant at the .05 level. These beneficial effects are of a similar order of magnitude as Fletcher's (2009) cross-sectional estimates of the negative effects of exposure to elementary school classmates with serious emotional behavioral problems.[14] Table 4 also reveals that increased counselor availability is unrelated to the use of Individualized Education

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[13] Frank and Glied (2006, p. 86) provide information on states' mental health insurance requirements. About half of all states in each category of elementary counselor policy either mandate a benefits package or mandate availability of services from mental health professionals. The one small exception is that states that mandate a minimum school-level counselor-student ratio are more likely to also impose mental health insurance mandates (five out of the seven states in this category have a mental health insurance mandate).

[14] Using first grade test scores from the ECLS-K, Fletcher (2009) finds that exposure to a classmate with a serious emotional problem decreases math scores by about .09 standard deviations and decreases reading scores by about .13 standard deviations, (based on column 3 of Tables 2 and 4 of Fletcher's study). Note that these studies differ in terms of using standard deviations in student-level scores or school-level mean scores, but the third grade ECLS-K student-level standard deviations in test scores for the same sample are fairly close to the school-level standard deviations reported in Table A.1 of this paper's appendix: student-level standard deviations of about 15 points for math scores and 17 points for reading scores.

Plans (IEP's), suggesting that counselors for the general student population may indeed be used as a completely separate service from psychologists who deal exclusively with special education students. All of the results in Table 4 are based on models using the full sample of students, but these results are robust to excluding students with IEP's.[15]

The remainder of Table 4 displays estimated effects of greater counseling services on students' social and emotional issues and their attitudes toward academic subjects. These analyses may reveal possible mechanisms through which mental health services may improve school-wide test scores. The ECLS-K data contain six indexes that rate third grade students along various dimensions based on their responses to individual survey questions; these indexes respectively measure (i) Externalizing Problem Behaviors, (ii) Internalizing Problem Behaviors, and Perceived Interest/Competence in (iii) Peer Relations, (iv) Reading, (v) Math, and (vi) All School Subjects. These indexes are each scaled between 1 and 4 and their values need not be whole numbers; I have adjusted their direction so that greater numbers (closer to 4) are always associated with more positive behavior or attitudes.

Counseling availability is strongly related to improvements in students' tendencies to externalize or internalize problem behaviors, with a 5 percent increase in counseling coverage associated with a .12 and .13 standard deviation improvement in these problem behavior indexes respectively. Greater provision of counselors due to state policies is associated with a moderate increase in students' interest and confidence in math but not for reading or for academic subjects in general, which is consistent with the larger effects found for math test scores than for reading test scores. Greater counseling availability is associated with worse self-reported outcomes for how well students get along with their peers, though this relationship is not statistically significant. Additional estimates suggest that the correlation between counselor availability and either peer relations or interest/confidence in general academic subjects is

[15] Excluding students with IEP's during third grade, the resulting t-statistics for the estimates in Table 4 would have absolute values of 2.13 for math scores, 1.82 for reading scores, 2.25 for externalized behavior disorders, 2.60 for internalized behavior disorders, and 1.00 or less for all other reported outcomes.

actually positive for girls but not for boys, though neither relationship is statistically significant for either gender.[16]

STATE COUNSELOR POLICIES AND TEACHERS' PERCEPTIONS OF SCHOOL CLIMATE: DIFFERENCE-IN-DIFFERENCES EVIDENCE FROM THE SASS

Data Description

Given that states' adoption of aggressive elementary counselor policies could be correlated with important, omitted state-level variables, I next examine how states' adoptions of these policies are related to changes in outcomes over time. Fortunately, another NCES data set, the Schools and Staffing Survey (SASS), includes data with outcomes for several years spanning the period when most states adopted their relatively aggressive elementary counselor policies. The SASS contains teachers' survey responses to a battery of questions concerning the environment in their school and in their classroom. The SASS is not a balanced panel data set, but rather it contains representative samples with more than 30,000 public school teachers surveyed during each wave. Using sampling weights reported in the SASS, one can find estimates that are representative at the national level and at the state level for the sampled states. To investigate the impact of states' counseling policies between 1987 and 2003, I use a pooled cross-section of SASS data from the 1987-88, 1989-90, 1993-94, 1999-2000, and 2002-03 school-year waves. As shown in Tables 1 and 2, eleven states adopted significant policies during this time period which could increase the provision of counseling at the elementary school level. While most state educational policy reforms create changes at all grade levels, nine of these eleven state policies were exclusively targeted at the elementary-level, with North Dakota's and Oklahoma's reform as the exceptions. I combine the SASS

[16] There are not any statistically significant differences by gender if one replicates the models in Table 4 for average outcomes by gender with models that control for both overall and gender-specific school composition. The largest difference is that the positive relationship between counselor availability and growth in math scores is more than twice as large for boys as it is for girls, which is consistent with other studies' findings of stronger effects for boys associated with peer behavioral issues and interventions (for example, Figlio, 2007; Aizer, 2008).

data with states' elementary counselor policy information and with school-level control variables from the NCES' Common Core of Data.[17]

Empirical Models

I use the SASS data to estimate three different types of models concerning the impact of counselor policies on teachers' views of the climates in their schools and classrooms. While the survey questions allowed teachers to choose one of several responses, the main results below use dichotomous categorizations of their responses. I present estimates from linear probability models below, though average marginal effects from probit models are very similar to these estimates.[18] Table 5 displays frequencies and sample sizes for the dependent variables used in these models. I chose variables which may theoretically be influenced by counselor policies and which could be constructed based on nearly identical questions across all of the survey years.

Define $ElemCounselorPolicy_{st}$ as a dummy variable equal to one if state *s* subsidizes, requires, or recommends a minimum number of elementary counselors during year *t*. This variable does not equal one for requirements spread across all grade levels, (as in Arkansas, North Carolina, and North Dakota), but does equal one for requirements that specify a minimum amount of counseling services at the elementary level. Define X_{it} as a vector containing control variables for year *t* for teacher *i*'s characteristics and for characteristics of teacher *i's* school that year. The teacher-level control variables are linear and squared

[17] The Common Core of Data (CCD) variables come from the same school year as the SASS data, except for the 1987-88 SASS observations which are paired with data from the 1998-89 CCD because that was the first available year of the CCD. Using grade-level enrollment data from the CCD, I classify schools as elementary if more than half of their enrolled students are in grade 5 or below and I classify schools as high schools if more than half of their enrolled students are in grade 9 or above. For schools with missing or incomplete grade-level enrollments in the CCD, I use grade-span information in the CCD and classify schools as elementary if the highest grade served is 6th or lower and classify schools as high schools if the lowest grade served is 9th or higher.

[18] The vast majority of the average marginal effect estimates in the probit models are within .005 of the corresponding coefficients reported in Table 6. The only average marginal effect estimates that are at least .01 different correspond with: student absenteeism in column 2a (-.057 average marginal effect), teacher absenteeism in column 1b (-.019), and student drug abuse in columns 2b and 3b (-.103 and -.091 respectively). The full set of probit estimates are available from the author upon request. Ordered probit models also produce similar patterns in terms of statistically significant effects; ordered models, however, require unrealistic assumptions concerning uniform effects of the independent variables across outcome levels, especially for the triple difference models.

terms for the teachers' age, years of teaching experience, and real base salary,[19] as well as indicators for gender and for whether the teacher's ethnicity is white and non-Hispanic.[20] The school-level control variables are the percent of students enrolled in Kindergrarten through 2nd grade, the percent of students who qualify for free school lunches based on their families' income, the percent of students whose race is either Black or Hispanic, the teacher–pupil ratio, and the district-level mean operating revenues per student.

First, by exploiting the timing of adoption of elementary counselor policies, I find difference-in-differences estimates by controlling for state fixed effects. Restricting the sample to responses from teachers in elementary schools, I estimate the following model:

$$Y_{ist} = \beta_1(\text{ElemCounselorPolicy}_{st}) + X_{it}\beta_2 + \varphi_s + \tau_t + e_{ist}, \quad (2)$$

where Y_{ist} is one of several dichotomous dependent variables based on teachers' survey responses, φ_s is a vector of state fixed effects based on the location of teacher *i*'s school, and τ_t is a vector of year effects. These difference-in-difference estimates provide unbiased estimates of the effects of counseling policies if important, omitted state-level variables are time invariant. Falsification tests below provide reassuring evidence that these estimates might not be substantially biased due to either persistent trends or changes in other types of resources. In addition, observed elementary-level resources (i.e., spending per pupil, teachers per pupil) mildly decreased after the adoption of these elementary counseling policies, [21] so if

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[19] Base salary is adjusted for inflation using the March Consumer Price Index for each school year. In addition to the linear and squared terms for base salary, I also include an indictor equal to one for the few cases in which the teacher's salary is missing or bottom-coded or as low as the $5,000 cutoff for bottom-coding used in the 1999-2000 SASS sample wave. These observations are assigned values of zero for the linear and squared salary terms.

[20] Controlling for these teacher-level characteristics alters the interpretation of the estimated effect of counseling policies, because this removes any indirect effects on statewide trends in teachers' responses caused by counseling policies' impact on the composition of teachers in a state. In practice, the estimates remain very, very similar if one excludes all of these teacher-level control variables from the models below.

[21] I estimated models with either spending per pupil or pupil–teacher ratios as the dependent variable, using this SASS sample with $\text{ElemCounselorPolicy}_{st}$ as an independent variable, controlling for state fixed effects and for year effects, and using this SASS sample—i.e., models equivalent to equation 2 without the X_{it} vector. The adoption of an elementary-level counseling program was associated with an $84 decrease in district-level operating revenues per pupil for the average elementary school teacher and with an increase of more than 0.5 pupils per teacher at the school. In stark contrast, the adoption of this policy was not associated with any increase in pupil–teacher ratios in high schools.

unobserved resources also decreased then the estimates of β_1 would understate the beneficial effects of the counseling policies.

By further exploiting changes in elementary schools counselor policies that did not coincide with changes in policies directly affecting high schools, one can find triple differences estimates by including both elementary and high school outcomes and controlling for state-by-instructional-level, state-by-year, and year-by-instructional level fixed effects. These triple differences estimates rely on the less stringent assumption that any important, omitted state-level variables are either time invariant or have similar effects on elementary schools and high schools. The triple differences estimates might be more severely biased than the difference-in-differences estimates if the timing of states' adoptions of elementary counseling policies corresponds with the timing of more general shifts in resources away from high schools toward elementary schools, but this does not seem to occur (see footnote 19). Also, the continued inclusion of the teacher–pupil ratio as one of the control variables, (in the X_{it} vector), addresses potential shifts in class sizes across grade levels. The third set of results is based on the following model including a sample of both elementary school and high school teachers:

$$(3) \quad Y_{ist} = \beta_1(Elementary_{it})(ElemCounselorPolicy_{st}) + X_{it}\beta_2 + (Elementary_{it})X_{it}\beta_3 + (Elementary_{it})S_s\lambda + (Elementary_{it})T_t\theta + \delta_{st} + e_{ist},$$

where β_1 is again the coefficient of interest—the additional effect of having an elementary counselor policy when teacher *i* teaches at the elementary level rather than the high school level. The vectors S_s and T_t include indicator variables for all states and years, respectively. The control variables in equation 3 have school-level specific effects,[22] state-by-year fixed effects are captured by δ_{st}, elementary-level-by-state fixed effects are captured by λ, and elementary-level-by-year fixed effects are captured by θ. This model and the remaining model below omit North Dakota and Oklahoma observations from the sample, because these states also expanded secondary-level counseling.

[22] All control variables enter the equation both individually and interacted with the elementary-level indicator variable, except for the fraction of the students in the school enrolled in grades K-2 which only enters with the elementary-level interaction term.

If elementary counseling policies not only have beneficial effects on elementary-level outcomes but ultimately improve high school outcomes, then these triple differences estimates may be biased because they subtract away the long-term positive effects of elementary counselors on high school students. The final model controls for the potential impact of an elementary school counselor policy adoption on high school teachers' response if the elementary policy adoption occurred at least five years earlier. (It should take at least five years for the long-term effects of elementary-level policies to persist into high school, because most students receiving the treatment in elementary school would reach high school at least five years later.) The final set of results is thus based on the following model:

(4) $$Y_{ist} = \beta_1(Elementary_{it})(ElemCounselorPolicy_{st}) + X_{it}\beta_2 + (Elementary_{it})X_{it}\beta_3 + \beta_4(HighSchool_{it})(ElemCounselorPolicy_{st-5}) + (Elementary_{it})S_s\lambda + (Elementary_{it})T_t\theta + \delta_{st} + e_{ist},$$

where $HighSchool_{it}$ is a dummy variable equal to one if teacher *i* taught in high school during year *t*. Given that these models examine the impact of changes in state-level policies, the standard errors in all of these models are adjusted for clustering at the state level.

Results

Main Estimates Table 6 displays the results from estimation of equations 2 through 4 for each type of teacher survey response. Columns 1a through 3a display estimates of the effect of counselor policies on the likelihood that teachers report that something was at least a minor problem at their school, while Columns 1b through 3b display the estimated effect on the likelihood that teachers report that something was a moderate or severe problem. Each panel of each column displays the results from a unique model, with the estimated coefficient of the relevant counselor policy variable followed by the corresponding standard error in parentheses. The coefficients include asterisks based on the p-values of the one-tailed hypothesis tests concerning whether counselor policies reduce the likelihood that teachers report that various issues are problems at their schools. In almost every specification, the results are consistent with a beneficial impact of states' elementary school counselor policies on teachers' perceptions of school climate.

The first panel of results suggests that states' elementary counselor subsidies or requirements cause teachers to be less likely to report that student misbehavior interferes with their teaching. Based on the difference-in-differences estimates, the addition of a counseling policy causes a 3.1 percentage point decline in the fraction of teachers expressing some concern over student misbehavior disrupting teaching; this is a 5 percent reduction in rates of concern. At the .10 level of significance, one can reject the null hypothesis that counseling policies do not influence teachers' perceptions of student misbehavior in favor of the alternative that counseling policies have beneficial effects. The triple differences models continue to suggest that counseling policies reduce teachers' concerns that student behavior interferes with teaching, and the magnitude and statistical significance of these estimates are greater than in the difference-in-difference models. In the triple differences model that also controls for the potential long run impact of elementary counseling policies on high school teachers' responses, the estimate suggests a 5.0 percentage point reduction in the rate at which elementary teachers report that student misbehavior is at least minor problem; at the .01 level, one may reject the null hypothesis that counseling policies do not influence teachers' responses in favor of the alternative that counseling policies have beneficial effects. The triple differences estimates are also generally greater than the difference-in-differences estimates for the other teacher survey responses concerning minor problems, but the gap in magnitudes are usually small considering the standard errors of these estimates.

Elementary counseling policies have large beneficial effects for reducing the rates at which teachers are concerned about numerous issues, including physical conflicts with students, students cutting class, robbery and theft, and student drug abuse. For each of these outcomes, the differences-in-differences and triple differences models all indicate mean effects exceeding a one percentage point reduction in reported concern over problems. While 26.6 percent of elementary teachers feel that physical conflicts are a moderate or severe problem, the point estimates suggest that adopting an elementary counselor policy can reduce this rate by between 4.1 and 6.3 percentage points. While only 21.1 percent of elementary teachers feel that students cutting class is at least a minor problem at school, adopting an elementary counselor policy can reduces this rate by as much as 7.5 percentage points. While only 11.8

percent of elementary teachers feel that robbery or theft is a moderate or severe problem, adopting an elementary counselor policy can reduce this rate by as much as 4.0 percentage points. Less than 20 percent of elementary teachers are concerned about student drug abuse, but estimates suggest that counseling policies reduce this rate by as much as 8.5 percentage points. For each of these outcomes, at the .05 level of significance or better, one can reject the hypothesis that counselor policies do not affect teachers' responses in favor of the hypothesis of a beneficial effect of counselor policies. The triple differences models also suggest a fairly large but statistically insignificant reduction of as much as 3.8 percentage points in the rates of teachers expressing a moderate or severe concern over student tardiness.

The estimated effect of counselor policies on teachers' concerns over vandalism of school property are in the predicted direction and statistically significant for at least mild concerns but not for more serious concerns. The strongest evidence concerning effects on vandalism are in the triple differences models; while 63.9 percent of teachers express a mild concern over vandalism, these estimates suggest that this rate decreases by about 7 percentage points after the adoption of an elementary counselor policy. The estimated effect of counselor policies on student absenteeism are also in the predicted direction and are statistically significant for the models predicting whether teachers express at least a mild concern. Interestingly, the magnitude of the estimated effects on absenteeism are less than the magnitude of the effects specifically on students cutting class. Elementary counseling policies might increase students' willingness to attend school and to attend classes without necessarily improving their physical health, so it is the discretionary aspect of student attendance that teachers feel improves when their state has a more aggressive elementary school counseling policy. These policies are also associated with declines in concerns over teacher absenteeism. The largest effects on teacher absenteeism are found in the triple differences models predicting whether teachers feel that this is at least a minor problem; while 43.6 percent of elementary teachers agree that teacher absenteeism is a problem, an elementary counseling policy reduces this rate by either 3.4 or 5.1 percentage points in these models. A higher rate of teacher attendance is a plausible spillover effect from improved student behavior due to increased availability of counselors.

To provide a sense of the control variables' coefficients, Table A.2 in the Appendix displays the other estimated coefficients for the model corresponding with column 3a of Table 6, with teachers' mild concern over student misbehavior as the dependent variable. Based on the estimated coefficient of the $(HighSchool_{it})*(ElemCounselorPolicy_{st-5})$ variable, -.035 with a standard error of .027, there may be some long term benefits of elementary counselors in terms of reducing student misbehavior in high school. As discussed in section 5.3.3 below, the overall evidence concerning long-term benefits is inconclusive. As for the school-level control variables, a higher fraction of students who are eligible for free lunches, a measure of the poverty rates of children's families, is associated with a greater fraction of teachers who feel that student misbehavior interferes with teaching. The same relationship holds for the fraction of ethnic minority students, those whose ethnicity is Black or Hispanic. Each of these estimates is statistically significant at the .01 level. These relationships exist at both elementary schools and high schools. For elementary teachers, having a higher fraction of enrollments concentrated in earlier grades is associated with teachers being less likely to be concerned with student misbehavior. Holding other factors constant and controlling for state-by-year fixed effects, school district spending per pupil is not significantly related to teachers' concerns about student misbehavior. Holding other factors constant, elementary-level teachers are less likely to be concerned about student misbehavior if these teachers are female, non-white, lower-paid, more experienced, or older.[23]

Shifts in Other Resources? Equations 3 and 4 include control variables for school districts' pupil–teacher ratios at the elementary and secondary levels, but the adoption of elementary counseling programs could theoretically coincide with changes in other non-counseling resources in elementary schools. Data measuring districts' general operating expenditures are only available pooled across all grade levels. Fortunately, the SASS asked teachers a question related to general resources that should be unrelated to counselor availability: whether "necessary materials such as textbooks, supplies, and copy machines are

[23] Based on the quadratic term coefficients, elementary school teachers are at a lower risk of reporting concern over student misbehavior as they gain experience, up until the 36th years of experience, and as they age, up until they are 63 years old. Higher base teaching salaries are associated with increased rates of concern until salaries reach about $55,000 (year 2003 $), which was almost the 90th percentile of base salary.

available as needed by staff." The SASS asked teachers this question in each sample wave, except for 1999-2000.

Table 7 displays estimation results similar to Table 6 but using dichotomous measures of how strongly teachers agreed or disagreed with this statement concerning materials. The estimates in Table 7 do not suggest a coincidental reallocation or enhancement of other resources. In states adopting programs, elementary teachers are slightly *more* likely to "strongly disagree" that they have access to materials and this association is very slightly greater for elementary-level teachers than for high school teachers. None of these falsification estimates are statistically significant; they are all either trivial in size or inconsistent with an upward bias in the estimates displayed in Table 6.

Timing and duration of the estimated effects As one would expect, the estimated beneficial effects of expanding counselors occur sharply, as similar effects do not occur in the period immediately preceding the policy. To examine this issue, I re-estimated the models in Table 6 with the addition of an interaction term for teaching in a state that adopts a new elementary counseling policy during the next wave of the Schools and Staffing Survey. Although some states adopted their policies before the second wave of the Schools and Staffing Survey and thus do not help to identify leading effects in the difference-in-differences models, the standard errors for this leading indicator's coefficients are not much larger than the corresponding coefficients in Table 6. The results are consistent with a lack of beneficial leading effects—out of the 34 models analogous to those in columns 1a, 1b, 2a, and 2b of Table 6, 22 coefficients suggested an *increase* in elementary teachers' concerns immediately prior to the adoption of an elementary counseling policy. Only 4 coefficients suggesting a decrease in concerns immediately prior to adoption were statistically significant at the .20 level. This pattern further supports the argument that states adopting more aggressive counseling policies were not already experiencing improvements in elementary school climate.

Only a couple of the estimated coefficients of the $(HighSchool_{it})*(ElemCounselorPolicy_{st-5})$ term from equation 4 suggest long-term benefits of elementary counselors related to high school teachers' reduced concerns. These estimates are almost all statistically insignificant, partly because the standard

errors are fairly large—i.e., about 3 percentage points and greater. The most compelling evidence of beneficial long-term effects is a reduction in high school teachers' concerns that student misbehavior interferes with instruction—a 3.5 percentage point decline in mild concerns and a 2.8 percentage point decline in moderate/serious concerns, with one-sided test p-values of .102 and .167 respectively. Further evidence is needed concerning whether the benefits of expanded elementary counseling persist as cohorts of children advance into their adolescence and beyond.

COUNCLUSION

The majority of states do not currently require public elementary schools to employ any counselors, but this paper's results consistently suggest that expanding the availability of counselors positively affects student behavior. Greater availability of counselors is also associated with improvements in student learning and in students' mental health, as measured by third grade students' test score gains and these students' responses to a battery of questions concerning externalized and internalized problem behaviors. By generating large improvements in student behavior, expanded elementary counselor programs may potentially improve student learning during both the early and later grades.

While the estimated effects of counselor policies are substantial, it is difficult to precisely estimate the cost effectiveness of counselors, because most of the dependent variables cannot easily be converted into benefits measured in monetary units. The best-identified models document large reductions in teachers' concerns over student misbehavior after the adoption of new, statewide elementary school counseling policies. These survey response patterns may be indicative of very meaningful effects, as longitudinal variation in teachers' survey responses concerning problems such as vandalism are significantly, positively correlated with longitudinal variation in juvenile arrest rates.[24] Counselors may

[24] Longitudinal, within-state variation in public elementary school teachers' concerns over student vandalism is positively related to longitudinal, within-state variation in the arrest rates of 10 to 12 year old children, based on arrests data from the F.B.I. (U.S. Department of Justice, 2009). This relationship is statistically significant at the .05

be very valuable in terms of their preventive cost effectiveness if they reduce truancy and criminal behavior. Counselors also seem to improve teacher attendance rates, which should in turn improve student achievement (Miller et al., 2008; Clotfelter et al., 2009; Herrmann and Rockoff, 2009).

Even ignoring the potential preventive cost effectiveness of counselors, the estimates suggest that counselors may be relatively cost effective in terms of their impact on students' test scores alone. Assuming that the estimates in Table 4 do not understate or overstate the causal impact of additional counselors, [25] these estimates help to provide a rough sense of the relative cost effectiveness of hiring additional counselors. The estimates of Table 4 suggest that, among other effects, a 5 percentage point increase in counseling coverage leads to a 0.11 standard deviation improvement in math test scores and a .07 standard deviation improvement in reading scores. The cost of expanding counseling services so that counselors are able to meet with a 5 percent greater share of the student population could approach $46 per student per year.[26] Solely considering test score gains and otherwise ignoring behavioral improvements, this relatively modest investment in counselors could thus be much more cost effective than other policies that have been shown to improve student achievement, such as reducing class sizes, hiring teachers with better cognitive abilities, or hiring fewer novice teachers.[27] These test score effects of

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level. Several of the other teacher response rates, (including student tardiness and teacher absences), are also significantly, positively related to the arrest rates of 10 to 12 year old boys. The effect of counselor policies on short-term and long-term crime rates is beyond the scope of this paper, but I plan to investigate this issue in future work.

[25] Additional analyses—not shown here in the interest of brevity—suggest that the estimates in Table 4 might actually understate the impact of counselors. The triple differences estimates in Table 6 are greater than estimates from pooled cross-sectional models that control for Census-region fixed effects—i.e., models somewhat similar to those in Table 4. This suggests that the estimates in Table 4 might understate the true effects of counselor policies because states adopting these policies would otherwise have relatively poor student outcomes, holding other factors constant.

[26] Starting counselor salaries typically range from $32,000 to $40,000 a year, and the average additional counselor might cost a school district about $55,000 in terms of salary and benefits. An additional half-time counselor at a school of 600 elementary students should be enough to provide additional coverage so that at least 5 percent more of the student population meets with a counselor during each school year, putting the estimated cost of increasing this coverage at about $46 per student. As shown in Table 3, schools in states simply recommending a minimum amount of counseling coverage have an additional 5 percent of their students meet with counselors compared to schools in states without any type of elementary counselor policy.

[27] Some of the largest estimated benefits of class size reductions come from the Tennessee STAR class size reduction experiment. Estimates analyzing data from that experiment suggest that assignment to a smaller class could improve third grade students' test scores by about .15 standard deviations (Krueger, 1999; Schanzenbach, 2010). The cost of hiring additional teachers alone would likely exceed $850 per student, based on a conservative

counselors are measured imprecisely and cannot be interpreted as causal effects in the same way as the evidence concerning how counseling policies reduce teachers' concerns about student misbehavior. More generally, the results suggest that elementary counselors not only improve student behavior but that these behavioral improvements cause teachers to feel better about their instructional capacities and could thus plausibly lead to large improvements in student learning. Schools in states with more aggressive elementary counseling policies are doing *something* better for their elementary students: better than similar schools in other states, better than they were previously doing before the policies were adopted, and with more immediate elementary-level improvements than secondary-level improvements.

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cost of $40,000 per additional teacher per year as schools move from a larger class regime (13-17 students) to a smaller class regime (22-25 students).

References

Adelman, H. S., & Taylor, L. (2003). Toward a comprehensive policy vision for mental health in schools. Handbook of School Mental Health: Advancing Practice and Research, edited by Weist M.D., Evans, S.W., & N.A. Lever. New York: Kluwer Academic/Plenum.

Aizer, A. (2008). Peer effects and human capital accumulation. NBER Working Paper 14354.

ASCA (American School Counselor Association). (2003). The ASCA national model: A framework for school counseling programs. Available www.schoolcounselor.org/files/Natl%20Model%20Exec%20Summary_final.pdf. Accessed 5 June 2009.

ASCA (American School Counselor Association). (2005). State School Counseling Mandates. http://www.schoolcounselor.org/content.asp?pl=325&sl=133&contentid=535, last accessed on 11/7/2005.

ASCA (American School Counselor Association). (2006). State Certification Requirements. http://www.schoolcounselor.org/content.asp?pl=325&sl=133&contentid=242, last accessed on 10/18/2006.

Atkins, M. S., Graczyk P. A., Frazier S. L., & Abdul-Adil, J. (2003). Toward a new model for promoting urban children's mental health: Accessible, effective, and sustainable school-based mental health services. School Psychology Review, 32(4), 503-514.

Carrell, S., & Carrell, S. (2006). Do lower student to counselor ratios reduce school disciplinary problems? Contributions to Economic Analysis & Policy, 5(1), 1463-1463.

Carrell, S., & Hoekstra, M. L. (2008). Externalities in the classroom: How children exposed to domestic violence affect everyone's kids. NBER Working Paper 14246.

Clotfelter, C., Ladd, H., & Vigdor, J. (2009) Are teacher absences worth worrying about in the U.S.? Education Finance and Policy, 4(2), 115-149.

Common Core of Data (CCD) for 2001-2002. (2005). National Center for Education Statistics.

Currie, J., & Stabile, M. (2006). Child mental health and human capital accumulation: The case of ADHD. Journal of Health Economics, 25, 1094-118.

Currie, J., & Stabile, M. (2007). Mental health in childhood and human capital. NBER Working Paper 13217.

Dee, T., & Levine, J. (2004). The fate of new funding: Evidence from Massachusetts' education finance reforms. Educational Evaluation and Policy Analysis, 26(3), 199-215.

Duncombe, W., & Yinger, J. (1998). School finance reform: Aid formulas and equity objectives. National Tax Journal 51(2), 239-262.

Early Childhood Longitudinal Study: Kindergarten Class of 1998-99 (ECLS-K), Spring 2002 Teacher Questionnaire, Part C, page 13. (2002). National Center for Education Statistics. http://www.nces.ed.gov/ecls/pdf/thirdgrade/teacherABC.pdf

Early Childhood Longitudinal Study: Kindergarten Class of 1998-99 (ECLS-K), Restricted-use Data with First Grade and Third Grade Follow-ups. (2004). National Center for Education Statistics.

Early Childhood Longitudinal Study: Kindergarten Class of 1998-99 (ECLS-K), Third-grade methodology report. (2005). National Center for Education Statistics.

Evans, S. W., & Weist, M. D. (2004). Implementing empirically supported treatments in the schools: What are we asking? Clinical Child and Family Psychology Review, 7(4), 263-267.

Figlio, D. N. (2007). Boys named Sue: Disruptive children and their peers. Education Finance and Policy, 2(4), 376-394.

Fisher, R. C., & Papke, L. E. (2000). Local government responses to education grants. National Tax Journal 53(1), 153-168.

Fletcher, J. M. (2009). The effects of inclusion on classmates with special needs: The case of serious emotional problems. Education Finance and Policy, 4, 278-299.

Fletcher, J. M. (2010). Spillover effects of inclusion of classmates with emotional problems on test scores in early elementary school. Journal of Public Policy and Management, 29(1), 69-83.

Frank, R. G., & Glied, S. A. (2006). Better but not Well: Mental Health Policy in the United States since 1950, The Johns Hopkins University Press: Baltimore, MD.

Glied, S., Garett, A. B., Hoven, C., Rubio-Stipec, M., Regier, D., Moore, R. E., Goodman, S., Wu, P., & Bird, H. (1998). Child outpatient mental health services use: Why doesn't insurance matter? The Journal of Mental Health Policy and Economics, 1, 173-187

Glosoff, H. L., & Koprowicz, C. L. (1990). Children achieving potential: An introduction to elementary school counseling and state-level policies. The National Conference of State Legislatures and the American Association for Counseling and Development.

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). Disruption versus Tiebout improvement: The costs and benefits of switching schools. Journal of Public Economics, 88, 1721-1746.

Heckman, J. J., Stixrud, J., & Urzua, S. (2006). The Effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. Journal of Labor Economics, 24(3), 411-482.

Herrmann, M., & Rockoff, J. (2009). Work disruption, worker health, and productivity: Evidence from teaching. mimeo, Columbia Business School.

Hines J. R., & Thaler R. H. (1995). Anomalies: The flypaper effect. Journal of Economic Perspectives, 9 (4), 217-226.

Ho, J., Yeh, M., McCabe, K., & Hough, R. L. (2007). Parental cultural affiliation and youth mental health service use. Journal of Youth and Adolescence, 36(4), 529-542.

Kataoka, S. H., L. Zhang, & Wells, K. B. (2002). Unmet need for mental health care among U.S. children: Variation by ethnicity and insurance status. The American Journal of Psychology, 159(9), 1548-1555.

Krueger, A.B. (1999). Experimental estimates of education production functions. Quarterly Journal of Economics, 114(2), 497-532.

Leaf, P. J., Alegria, M., Cohen, P., Goodman, S. H., Horowitz, S. M., Hoven, C. W., Narrow, W.E., VadenKiernan, M., & Regier, D.A. (1996). Mental health service use in the community and schools: Results from the four-community MECA study. Journal of the American Academy of Child and Adolescent Psychiatry 35(7), 889-897.

Mau, W.C., Hitchcock, R., & Calvert, C. (1998). High school students' career plans: The influence of others' expectations. Professional School Counseling, 2(2), 161-166.

Miller, R., Murnane R., & Willett J. (2008). Do worker absences affect productivity? The case of teachers. International Labour Review, 147(1), 71–89.

Nagin, D., & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. Child Development, 70 (5), 1181-1196.

National Association of State Boards of Education (NASBE). (2005). "State-by-state requirements for school counselors." Available at http://www.nasbe.org/HealthySchools/States/Topics.asp?Category=B&Topic=6.

Neidell, M., & Waldfogel, J. forthcoming. Cognitive and non-cognitive peer effects in early education. Forthcoming in the Review of Economics and Statistics.

Peterson, G.W., Long, K.L., & Billups, A. (1999). The effect of three career interventions on educational choices of eighth grade students. Professional School Counseling, 3(1), 34-42.

Prout, S. M. & Prout, H. T. (1998). A meta-analysis of school-based studies of counseling and psychotherapy: An update. Journal of School Psychology, 36(2), 121-136.

Reback, R. (2010). Noninstructional spending improves noncognitive outcomes: Discontinuity evidence from a unique school counselor financing system. Education Finance and Policy, 5(2), 105-137..

Requirements for Certification of Teachers, Counselors, Librarians, Administrators for Elementary and Secondary Schools, 66th edition, 2001-2002. (2001). edited by Elizabeth A. Kaye. Chicago, IL: University of Chicago Press.

Schanzenbach, D.W. (2010). The economics of class size. In D.J. Brewer & P.J. McEwan (Eds.), Economics of Education (pp. 183-190). Elsevier.

Schlossberg, S.M., Morris, J.D., & Lieberman, M.G. (2001). The effects of a counselor-led guidance intervention on students' behaviors and attitudes. Professional School Counseling, 4(3), 156-164.

Schneider, H., & Eisenberg, D. (2006). Who receives a diagnosis of Attention-Deficit/Hyperactivity Disorder in the United States elementary school population? Pediatrics 117(4), e601-609.

Serafica, F. C. (1999). Clinical interventions and prevention for Asian American children and families: Current status and needed research. Applied & Preventive Psychology, 8(2), 143-152.

Sink, C. A., & Stroh, H. R. (2003). Raising achievement test scores of early elementary school students through comprehensive school counseling programs. Professional School Counseling 6, 352-364.

Stage S. A., & Quiroz D. R. (1997). A meta-analysis of interventions to decrease disruptive classroom behavior in public education settings. School Psychology Review, 26(3), 333-368.

Study of Pupil Support Ratios, Programs, and Services: A Report to the California State Legislature in Response to AB 722. (2003). accessed on 10/30/07 from http://www.cde.ca.gov/ls/cg/rh/documents/ab722report.pdf.

Sturm, R., Ringel, J. S., & Andreyeva, T. (2003). Geographic disparities in children's mental health care. Pediatrics, 112(4), e308-e315.

U.S. Department of Health and Human Services. (1999). Mental Health: A Report to the Surgeon General. Washington, D.C.

U.S. Department of Justice. (2009). Federal Bureau of Investigation Uniform Crime Reporting Program Data [United States]: Arrests by Age, Sex, and Race. Distributed by the Inter-university Consortium for Political and Social Research (ICPSR).

Waldfogel, J. (2006). What Children Need. Cambridge, MA: Harvard University Press.

Weissbourd, R. (1996). The Vulnerable Child: What Really Hurts America's Children and What We Can Do About It. Addison-Wesley.

Weist, M. D., Evans, S.W., & Lever, N.A. (2003). Advancing mental health practice and research in schools. Handbook of School Mental Health: Advancing Practice and Research, edited by S.W. Evans & N.A. Lever (ed.), New York: Kluwer Academic/Plenum.

Whitson, S. C. **(**2002). Response to the past, present, and future of school counseling: Raising some issues. Professional School Counselor, 5(3), 148–155.

Whitson, S. C., & Sexton, T. L. (1998). A review of school counseling outcome research: implications for practice. Journal of Counseling and Development, 76, 412-426.

Winter, G. **(**2005). Why educators falter before the enigma of violence. New York Times, Education page, March 30, 2005.

Yeh, M., Forness, S. R., Ho, J., McCabe, K., & Hough, R. L. (2004). Parental etiological explanations and disproportionate racial/ethnic representation in special education services for youths with emotional disturbance. Behavioral Disorders, 29(4), 348-358.

Zins, J., Weissberg, R., Wang, M., & Walberg, H. J. eds. (2004). Building academic success on social and emotional learning: What does the research say? New York City: Teachers College Press.

Table 1: States that subsidized public elementary school counselors during the 2001-02 school year

State	Description of Subsidy	Initial Year
Alabama	State fully funded counselors are based on the prior year enrollment in the elementary school (average daily membership from the first 40 days of the prior school year): 1-499 students = 0.5 FTE (full-time equivalent) counselor; 500-749 = 1.0 FTE; 750-999 = 1.5 FTE; 1000-1249 = 2.0 FTE; 1250-1499 = 2.5 FTE; 1500 or more = 3.0 FTEs.	1989
Delaware	School districts earned a counselor for each full 150 units of pupils. Units were assigned as follows: 17.4 regular 1-3rd graders equals one unit and 8 learning disabled students equals one unit. School districts also earn state aid for each 250 units of pupils that may be used for counselors or certain other types of expenditures.	pre-1987
Georgia	School districts received $78.40 per elementary school student to hire counselors for grade K-5**.** Districts were required to employ at least one counselor for every 462 FTE K-5th grade students.	2000
Nevada	$50,000 per school district "to support special counseling services for elementary school pupils at risk of failure."	1995
Texas	$7.5 million in grant money to fund elementary school counselor salaries was divided among 64 districts. Districts submitted a competitive application for the counselor grant, and approximately 300 districts applied. Districts receiving the grants had to have a student-counselor ratio no greater than 500 to 1 (including fractional appointments).	1991

Sources: (1) Self-collected survey responses (via email and phone) from state education agency officials; (2) NASBE (2005); (3) ASCA (2005); and (4) Glosoff & Koprowicz (1990).

Table 2: States that required elementary school counselors but did not fund them with targeted state aid, 2001-02

State	Description of Mandate	Initial Year
Arkansas	Districts were required to have one counselor for every 450 students (all grades).	pre-1987
Idaho	Elementary schools were required to employ at least one FTE counselor (or psychologist or nurse) for every 450 students in order to be certified by Northwest Association of Accredited Schools, the main type of school certification in Idaho.	1997
Louisiana	School districts were required to employ at least one counselor for every 400 elementary students.	1991
Missouri	Schools were required to employ at least one counselor for every 500 elementary students.	1990
Montana	Elementary schools were required to employ at least one counselor for every 400 students.	1990
New Hampshire	Elementary schools were required to employ at least one counselor for every 500 students.	pre-1987
Nebraska	Elementary schools were required to employ at least one counselor if the schools enrolled at least 300 students.	1996
N. Carolina	Districts were required to have one counselor for every 400 ADM students (all grades).	pre-1987
North Dakota	Districts were required to have one counselor for every 450 students (all grades).	2000
Oklahoma	Districts were required to have one counselor for every 400 students (all grades). All districts must employ a least 0.5 FTE counselor and all schools must offer some counseling services.	1991
S. Carolina	A comprehensive guidance program is required in schools having any combinations of grades K-5. (Until 1997, the state specified a minimum ratio of at least one counselor for every 800 students.)	pre-1987
Vermont	Elementary schools were required to employ at least one counselor for every 400 students.	pre-1987
Virginia	Elementary school were required to provide the following minimum level of counseling services: One hour per day per 100 students, one full-time counselor at 500 students, one hour per day of additional time per each additional 100 students or major fraction thereof.	pre-1987

Sources: (1) Self-collected survey responses (via email and phone) from state education agency officials; (2) NASBE (2005); (3) ASCA (2005); and (4) Glosoff & Koprowicz (1990).

Table 3: Determinants of the Percentage of Students Receiving Counseling during Third Grade

	Mean	S.D.	Estimated Coefficient	p-value
State-level Elementary Counselor Policy				
State Directly Subsidizes Counselors	0.16	0.36	10.62	0.001
State Requires a Minimum Counselor-Student Ratio	0.09	0.29	1.47	0.477
State Recommends a Minimum Counselor-Student Ratio	0.13	0.34	5.25	0.112
Other State-level Characteristics				
Percent of Education Revenues Funded at the State Level	0.49	0.09	25.37	0.03
Midwest Census Region	0.20	0.40	0.09	0.975
South Census Region	0.40	0.49	-1.19	0.645
West Census Region	0.21	0.41	-1.66	0.578
District level				
Student enrollment in school district	51	150	0.04	0.055
Student enrollment in school district squared			$-3.7*10^{-5}$	0.059
School district spending per pupil ($1000's per pupil)	8.99	2.50	0.08	0.850
Median income in school district ($10,000's)	4.37	1.57	-1.06	0.401
Mean house value in school district ($100,000's)	1.48	0.85	0.76	0.658
Fraction of adults (25+) in school district with B.A. degree or higher	0.23	0.13	0.77	0.956
Fraction of adults (25+) in school district without a high school diploma	0.21	0.10	-36.98	0.007
School level				
School offers a 6^{th} grade	0.33	0.47	-1.16	0.594
School offers an 8^{th} grade	0.06	0.24	4.50	0.295
School enrollment	554	248	-0.0138	0.084
School enrollment squared			$5.3*10^{-6}$	0.278
School is located in a large city	0.13	0.34	-8.51	0.001
School is located in a medium-sized city	0.18	0.38	-1.37	0.564
School is located in a rural area	0.17	0.38	-0.78	0.785
Fraction of students at school who are ethnic minorities	0.38	0.34	7.01	0.195
Fraction of students at school with free/reduced-price lunch	0.46	0.29	1.95	0.701
Average Student-level Characteristics				
Female	0.49	0.20	-1.88	0.507
Black	0.15	0.27	-5.21	0.316
Hispanic	0.20	0.29	-6.70	0.138
Asian	0.03	0.08	-13.30	0.064
"Other" Race	0.03	0.10	12.25	0.149
Age (months)	111	2.5	-7.44	0.592
Age Squared			0.036	0.570
Fall Kindergarten Reading Scaled score	28.5	5.4	-1.28	0.059
Fall Kindergarten Reading Scaled score Squared			0.015	0.103
Fall Kindergarten Math Scaled score	22.2	5.2	1.01	0.170
Fall Kindergarten Math Scaled score Squared			-0.020	0.087
Proportion of Students in Households in which…				
Parents were married at time of child's birth	0.68	0.27	-5.70	0.188
Student was an only child in first grade	0.14	0.15	-1.38	0.756
Student had more than 2 siblings in household during first grade year	0.23	0.23	-1.63	0.655
Student had one parent in household during first grade year	0.20	0.19	3.56	0.431
Student had relative caretaker after school during first grade year	0.09	0.14	7.04	0.194
Student had non-relative caretaker after school during first grade year	0.14	0.17	2.68	0.517
Student had center daycare after school during first grade year	0.06	0.11	-4.50	0.585
Household lost a sibling between first and third grade	0.11	0.14	4.76	0.405
Household added as sibling between first and third grade	0.06	0.10	2.01	0.797
Household changed from 2 to 1 (or 0) parents between first and third grade	0.04	0.09	-1.30	0.884
Household changed from 1 (or 0) to 2 parents between first and third grade	0.10	0.14	1.71	0.760
Parents became divorced or separated between first and third grade	0.12	0.17	12.65	0.010
Child moved residences between first and third grade	0.15	0.17	1.59	0.664

Please see *Notes to Table 3* on the next page

Notes to Table 3: Each row displays the mean and standard deviation of an independent variable, followed by its regression coefficient and corresponding p-value when the percentage of 3rd grade students receiving counseling is regressed on all of these independent variables together. The average student and household variables are computed by finding weighted averages of student-level variables based on the appropriate sampling weights. The school-level observations are also weighted so that the results are nationally representative of third grade students who attended first grade during the 1999-2000 school year. The p-values account for clustering at the state level. The dependent variable has a weighted mean of 12.7 and a standard deviation of 18.9.

Table 4: The Relationship between mean school-level outcomes for third graders and variation in predicted counseling availability due to inter-state policy variation

Dependent Variable (School-level Mean)	Change (in std. dev.) associated with a 5 percentage point increase in students receiving counseling	T-statistic	*p-value*	N (# of schools)
Mean math test score	.11	2.09	.044	860
Mean reading test score	.07	2.06	.047	860
Percent of students with Individualized Education Plans	.00	-0.04	.969	790
Social and academic engagement scores based on students' interview responses (1=worst, 4=best)				
Externalizing problem behaviors	.12	2.09	.044	860
Internalizing problem behaviors	.13	2.19	.035	860
Interest/Confidence in…				
Peer Relations	-.08	-1.17	.248	860
Reading	.00	0.01	.991	860
Math	.05	1.00	.322	860
Academic Subjects in General	-.03	-0.58	.563	860

Notes to Table 4: Each row represents the results of a two-stage least squares model, with school-level variables computed by finding weighted averages of student-level variables based on the appropriate sampling weights. The school-level observations are also weighted so that the results are nationally representative of third grade students who attended first grade during the 1999-2000 school year. Reported sample sizes are rounded to the nearest 10 to comply with restricted-use data guidelines. Sample means and standard deviations for the independent and dependent variables are displayed in Tables 3 and Table A.1 in the appendix. The first stage of each model is a school-level equation using the state counselor policy indicators and the other independent variables listed in Table 3 to predict the fraction of students at the school receiving counseling. In each second-stage equation, the dependent variable is the mean student outcome at that school and the independent variables are the predicted counseling rate and the other covariates, excluding the state policy variables. The F-test for this exclusion restriction has a p-value of less than .001. The coefficients and standard errors for the individual counselor policy indicators in the first stage are .106 (.031 standard error) for directly subsidized counselors, .015 (.025) for a required counselor-student ratio, and .053 (.032) for a recommended minimum elementary-level counselor-student ratio. Given that identification of these models is based on state-level variation in policies, these standard errors and the t-statistics reported are based on standard errors adjusted for state-level clustering. The t-statistics might be biased downward given that the models use estimated school-level mean characteristics of third grade students rather than actual school-level mean characteristics of third grade students.

Table 5: Summary Statistics for the SASS Dependent Variables: Proportion of Teachers Responding that Various Issues are Problems at their Schools

To what extent is the following a problem at the school…	At Least a Minor Problem	A Moderate or Severe Problem
Student misbehavior interferes with my teaching[i]	0.607 *0.488*	0.358 *0.479*
Physical Conflicts among Students[ii,iii]	0.643 *0.479*	0.266 *0.442*
Students Cutting Class[ii]	0.213 *0.409*	0.039 *0.193*
Robbery or Theft[ii,iii]	0.634 *0.482*	0.118 *0.322*
Vandalism of School Property[ii,iii]	0.639 *0.480*	0.132 *0.338*
Student Absenteeism[ii]	0.807 *0.395*	0.341 *0.474*
Student Tardiness[ii]	0.761 *0.427*	0.300 *0.458*
Teacher Absenteeism[ii]	0.436 *0.496*	0.098 *0.297*
Student drug abuse[ii,iii]		0.192 *0.394*

Notes to Table 5: These proportions are based on the difference-in-differences sample of 49,380 elementary school teachers across the five sample waves, with proportions adjusted using teachers' sampling weights. (This sample size is rounded to the nearest 10 to comply with restricted-use data guidelines.) Corresponding standard deviations are italicized and listed below each proportion.

(i) This variable is the only one above not based on the "To what extent is the following a problem at the school…" series, as it is instead based on "For each of the following statements, indicate whether you strongly agree, somewhat agree, somewhat disagree, or strongly disagree." I coded the response as equivalent to a minor problem if the response was "somewhat disagree" and as a moderate or severe problem if the response was "somewhat agree" or "strongly agree."

(ii) For these variables, starting with the 1999-2000 sample wave, there was a minor wording change in the response options from "Serious, Moderate, Minor, Not a problem" to "Serious problem, Moderate problem, Minor problem, Not a problem."

(iii) For these variables, the question in the 2003-04 sample wave changed to: "To the best of your knowledge how often do the following types of problems occur with students at this school?" The response options were: "Happens daily, Happens at least once a week, Happens at least once a month, Happens on occasion, Never happens." To ensure the highest possible similarity in frequencies with the earlier sample waves, I coded these 2003-04 variables as follows: for vandalism and robbery, "on occasion" and "at least once a month" are minor problems and anything more frequent than that is a moderate or severe problem; for physical conflict, "at least once a month" is a minor problem and anything more frequent than that is a moderate or severe problem; for student drug abuse, "at least once a month" or more is a moderate or severe problem. Given that teachers rarely consider drug abuse to be a "minor problem", (it is generally either not a problem at all or a somewhat serious problem), I did not code a minor problem variable for drug abuse. Note that, although there are occasionally these minor changes in the wording of questions from sample wave to sample wave, the inclusion of either year effects or year-by-level-of-instruction effects as controls in the probit models should remove the impact of any fixed shift in the frequencies of various responses.

Table 6: Does Counseling for Elementary School Students Ease their Teachers' State of Mind? Difference-in-differences Estimates of the Impact of a State Subsidizing or Requiring Elementary Counselors

	At Least a Minor Problem			A Moderate or Severe Problem		
To what extent is the following a problem at the school:	(1a) Difference-in-differences	(2a) Triple Differences	(3a) Triple Dif. Controlling for Long-term HS Effects	(1b) Difference-in-differences	(2b) Triple Differences	(3b) Triple Dif. Controlling for Long-term HS Effects
N=	50,650	113,350	113,350	50,650	113,350	113,350
Student misbehavior interferes with my teaching	-.031* (.020)	-.035** (.018)	-.050*** (.020)	-.031* (.020)	-.019 (.020)	-.031* (.023)
Physical Conflicts among Students	-.040** (.023)	-.037** (.020)	-.050*** (.021)	-.063** (.027)	-.041** (.018)	-.051*** (.018)
Students Cutting Class	-.039* (.025)	-.075** (.033)	-.069*** (.025)	-.013* (.009)	-.023 (.022)	-.019 (.026)
Robbery or Theft	-.056** (.026)	-.059*** (.019)	-.032** (.015)	-.040*** (.015)	-.020* (.012)	-.026 (.020)
Vandalism of School Property	-.049** (.028)	-.077*** (.031)	-.070** (.034)	-.010 (.017)	-.004 (.017)	-.013 (.021)
Student Absenteeism	-.028* (.020)	-.035** (.018)	-.024* (.014)	-.014 (.037)	-.004 (.030)	.009 (.023)
Student Tardiness	-.003 (.019)	-.005 (.020)	.004 (.024)	-.019 (.026)	-.018 (.033)	-.038 (.044)
Teacher Absenteeism	-.024* (.017)	-.051** (.022)	-.034** (.020)	-.032* (.019)	-.019 (.033)	-.016 (.036)
Student drug abuse				-.055** (.026)	-.085*** (.032)	-.073*** (.022)

Notes to Table 6: Standard errors are adjusted for clustering at the state level and observations are weighted by the appropriate teacher sampling weights used to make these SASS data representative at the state and national levels.
Asterisks denote small p-values for the test of a beneficial counselor policy effect, with significance at the .10 (*), .05 (**), or .01 level (***). Reported sample sizes are rounded to the nearest 10 to comply with restricted-use data guidelines.

Table 7: Counselor Availability and Teachers' Responses to:
"Necessary materials such as textbooks, supplies, and copy machines are available as needed by staff."

	(1) Difference-in-differences	(2) Triple Differences	(3) Triple Differences Controlling for Long-term HS Effects
Strongly Disagree	.013 (.010)	.018 (.011)	.019 (.012)
Agree or Strongly Agree	-0.002 (0.019)	0.003 (0.016)	-0.002 (0.018)
Strongly Agree	-0.001 (0.020)	-0.002 (0.030)	-0.014 (0.039)

Notes to Table 7: None of the estimates are statistically significant at the .10 level. Responses to this survey questions were available in four out of the five SASS sample waves used in this paper; they were not available in the 1999-2000 wave. The sample includes 38,510 observations for column 1 and 86,250 observations for columns 2 and 3, (rounded to the nearest 10 to comply with restricted-use data guidelines). The sample-weighted frequencies for these responses suggest that 7.4 percent of elementary teachers "strongly disagree," 77.2 percent either "agree or strongly agree," and 39.2 percent "strongly agree."

Figure 1a

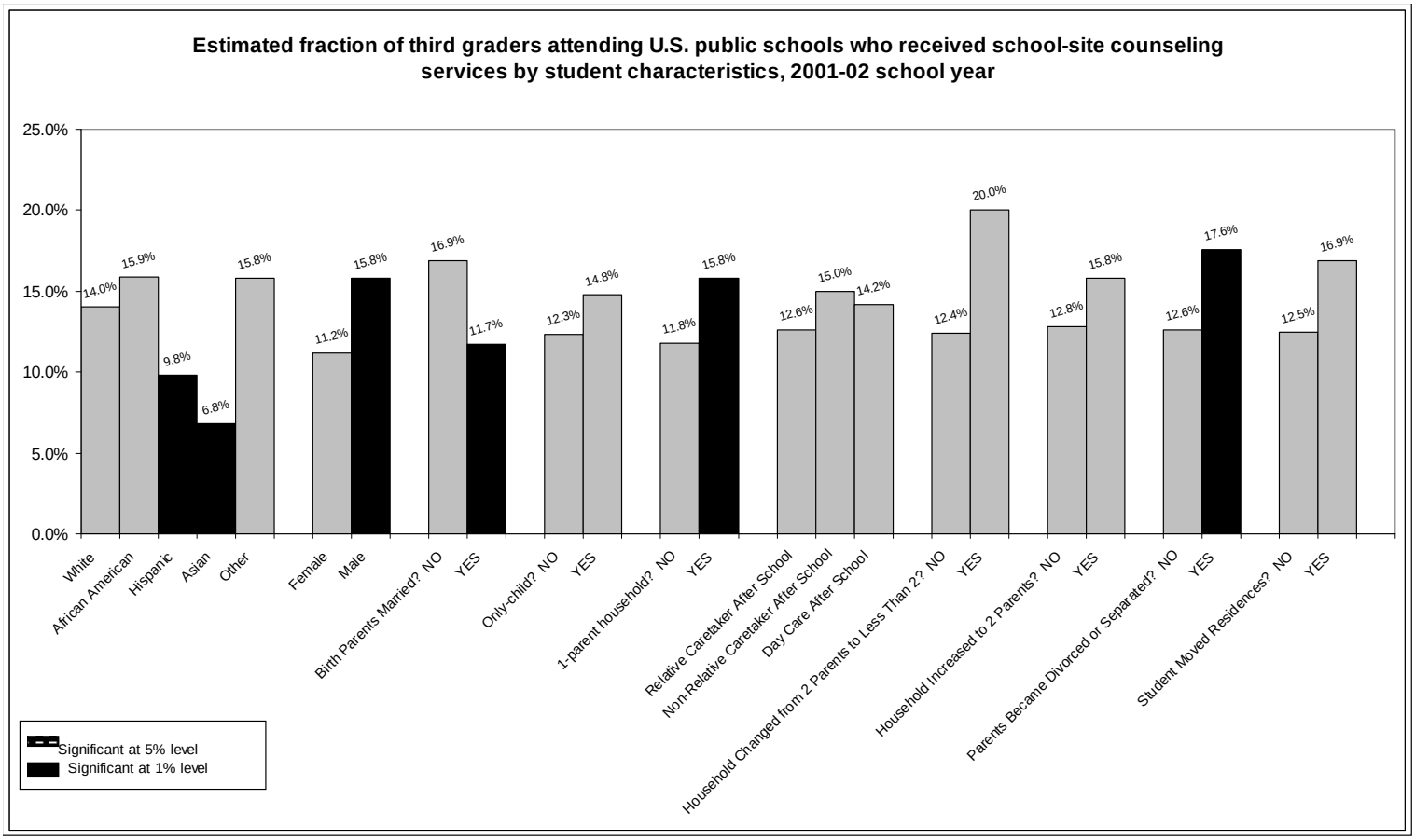
Estimated fraction of third graders attending U.S. public schools who received school-site counseling services by student characteristics, 2001-02 school year
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
14.0%
15.9%
9.8%
6.8%
15.8%
11.2%
15.8%
16.9%
11.7%
12.3%
14.8%
11.8%
15.8%
12.6%
15.0%
14.2%
12.4%
20.0%
12.8%
15.8%
12.6%
17.6%
12.5%
16.9%
White
African American
Hispanic
Asian
Other
Female
Male
Birth Parents Married? NO
YES
Only-child? NO
YES
1-parent household? NO
YES
Relative Caretaker After School
Non-Relative Caretaker After School
Day Care After School
Household Changed from 2 Parents to Less Than 2? NO
YES
Household Increased to 2 Parents? NO
YES
Parents Became Divorced or Separated? NO
YES
Student Moved Residences? NO
YES
Significant at 5% level
Significant at 1% level

Figure 1b

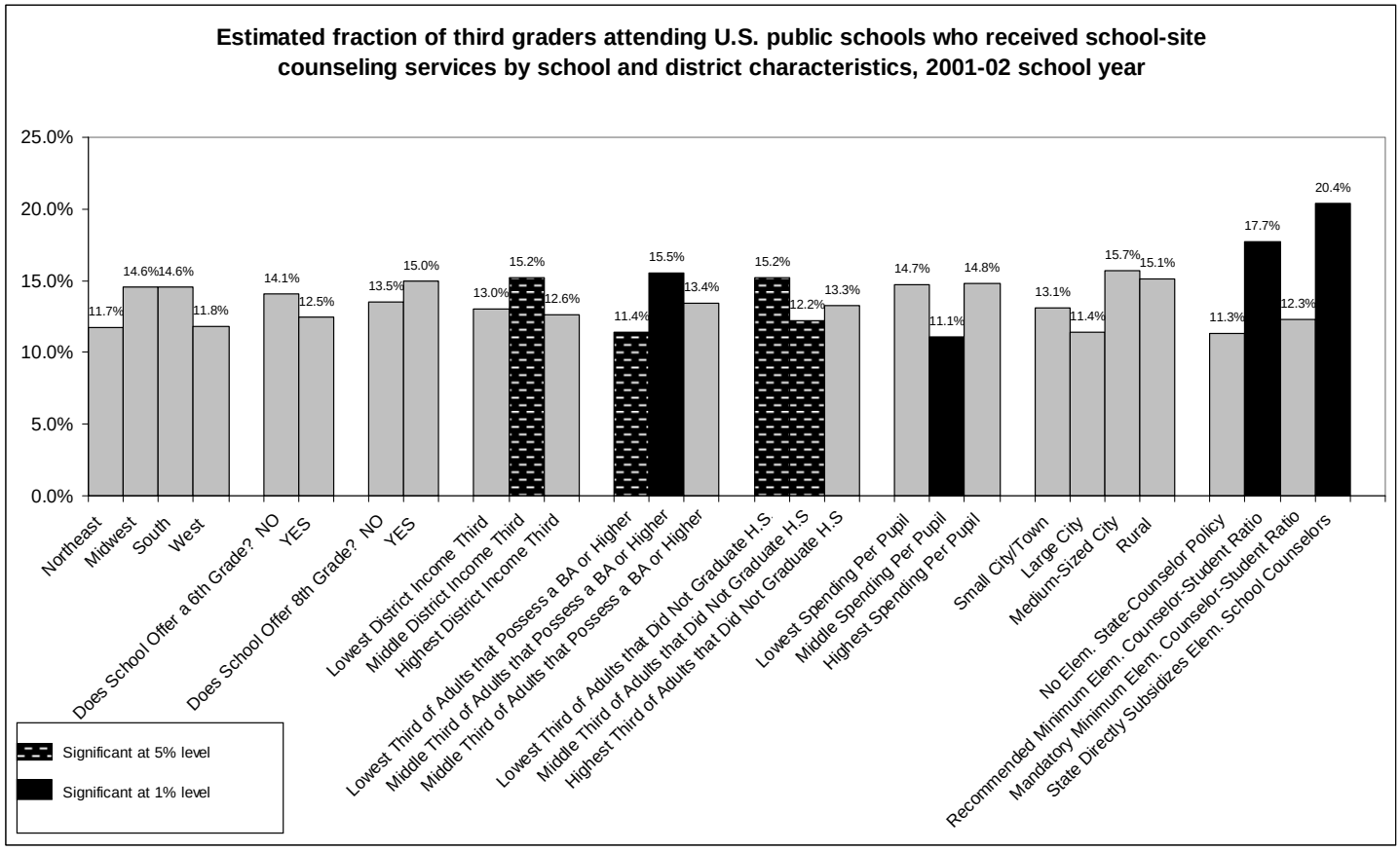
Estimated fraction of third graders attending U.S. public schools who received school-site counseling services by school and district characteristics, 2001-02 school year
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
11.7%
14.6%
14.6%
11.8%
14.1%
12.5%
13.5%
15.0%
13.0%
15.2%
12.6%
11.4%
15.5%
13.4%
15.2%
12.2%
13.3%
14.7%
11.1%
14.8%
13.1%
11.4%
15.7%
15.1%
11.3%
17.7%
12.3%
20.4%
Northeast
Midwest
South
West
Does School Offer a 6th Grade? NO
YES
Does School Offer 8th Grade? NO
YES
Lowest District Income Third
Middle District Income Third
Highest District Income Third
Lowest Third of Adults that Possess a BA or Higher
Middle Third of Adults that Possess a BA or Higher
Middle Third of Adults that Possess a BA or Higher
Lowest Third of Adults that Did Not Graduate H.S.
Middle Third of Adults that Did Not Graduate H.S
Highest Third of Adults that Did Not Graduate H.S
Lowest Spending Per Pupil
Middle Spending Per Pupil
Highest Spending Per Pupil
Small City/Town
Large City
Medium-Sized City
Rural
No Elem. State-Counselor Policy
Recommended Minimum Elem. Counselor-Student Ratio
Mandatory Minimum Elem. Counselor-Student Ratio
State Directly Subsidizes Elem. School Counselors
Significant at 5% level
Significant at 1% level

Table A.1: Summary Statistics for ECLS-K Dependent Variables used in Table 4

Dependent Variable (School-level Mean)	Mean	Standard Deviation
Mean Math Test Score	91.83	13.34
Mean Reading Test Score	117.13	15.82
Percent of Students with Individualized Education Plans	.130	.171
Mean SRS and Academic Engagement Scores Based on Students' Interview Responses (1=worst, 4=best)		
How well student gets along with peers	3.04	0.30
Externalizing Problem Behaviors	3.00	0.35
Internalizing Problem Behaviors	2.80	0.40
Student's interest/confidence in Reading	3.28	0.31
Student's interest/confidence in Math	3.18	0.37
Student's interest/confidence in all subjects	2.94	0.31

Table A.2: Full Model Estimates Predicting whether Teachers Report that Student Misbehavior Interferes with Instruction

Independent Variable	Coefficient	Standard Error
$Elementary_{it}$ *($ElemCounselorPolicy_{st}$)	-0.050	0.020
$HighSchool_{it}$*($ElemCounselorPolicy_{st-5}$)	-0.035	0.027
$Elementary_{it}$ *(Percent of students in grades K through 2)	-0.109	0.027
Pupil-teacher $Ratio_{it}$	0.0049	0.0012
$Elementary_{it}$*Pupil-teacher $Ratio_{it}$	-0.0022	0.0019
(Percent of students eligible for free $lunch_{it}$)	0.135	0.031
$Elementary_{it}$*(Percent of students eligible for free lunch)	0.027	0.037
Percent of students who are black or Hispanic $ethnicity_{it}$	0.216	0.024
$Elementary_{it}$*(Percent of students who are black or Hispanic $ethnicity_{it}$)	-0.009	0.038
School District Expenditures per Pupil [$thousands]	-0.002	0.002
$Elementary_{it}$*(School District Expenditures per Pupil)	0.001	0.004
Years of Teaching $Experience_{it}$	-0.005	0.001
(Years of Teaching $Experience_{it}$)^2	0.000097	0.000029
$Elementary_{it}$ *(Years of Teaching $Experience_{it}$)	0.003	0.002
$Elementary_{it}$ *(Years of Teaching $Experience_{it}$)^2	-0.000073	0.000036
$Female_i$	-0.027	0.004
$Elementary_{it}$*($Female_i$)	-0.029	0.012
$White_i$	0.062	0.010
$Elementary_{it}$ *($White_i$)	-0.002	0.014
Age_{it}	-0.005	0.001
(Age_{it})^2	0.000010	0.000032
$Elementary_{it}$ *(Age_{it})	-0.006	0.004
$Elementary_{it}$ *(Age_{it})^2	0.000055	0.000043
Salary is Bottom $Coded_{it}$	-0.042	0.062
$Salary_{it}$ [$thousands]	0.0005	0.0010
($Salary_{it}$)^2	-0.000005	0.000009
$Elementary_{it}$ *(Salary is Bottom $Coded_{it}$)	0.086	0.082
$Elementary_{it}$*($Salary_{it}$)	0.0049	0.0014
$Elementary_{it}$*($Salary_{it}$)^2	-0.000044	0.000014

Notes to Table A.2: These estimates are based on an OLS regression with approximately 113,350 teacher-level observations from the SASS—the same model used for the results displayed in the first row of column 3a of Table 6. This model also controls for state-by-instructional-level, state-by-year, and year-by-instructional level fixed effects. Standard errors are adjusted for clustering at the state level and observations are weighted by the appropriate teacher sampling weights used to make these SASS data representative at the state and national levels. Asterisks denote statistical significance at the .10 (*), .05 (**), or .01 level (***).