Domino Effect

Domestic violence harms everyone's kids

Each year, between 10 and 20 percent of schoolchildren in the United States are exposed to domestic violence. According to psychologists, such exposure can lead to aggressive behavior, decreased social competence, and diminished academic performance. A majority of parents and school officials believe that children who are troubled, whatever the cause, not only demonstrate poor academic performance and inappropriate behavior in school, but also adversely affect the learning opportunities for other children in the classroom. A nationally representative survey by Public Agenda found that 85 percent of teachers and 73 percent of parents agreed that the "school experience of most students suffers at the expense of a few chronic offenders."

Understanding whether troubled children in fact generate spillover effects in school is important for two reasons. First, the existence of substantial spillovers caused by family problems such as domestic violence would provide an additional compelling reason for policymakers to find ways to help troubled families. Second, because many education policies change the composition of school and classroom peer groups, it is important to understand how such changes may affect student achievement. For example, a common concern regarding the ongoing push to "mainstream" emotionally disturbed students in regular classroom settings is that doing so may undermine the performance of other students. Similarly, the tracking of students into classrooms based on ability or academic performance may group disadvantaged children with the most disruptive students. The validity of these concerns hinges on whether and how classroom exposure to troubled peers affects student achievement and behavior.

Credibly measuring negative spillovers caused by troubled children has been difficult. Most data sets do not allow researchers to identify troubled children. Even when such students are identified in the data, it is

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difficult to determine if a disruptive child causes his classmates to misbehave or if his classmates cause him to be disruptive, what scholars of peer effects call the "reflection problem." In addition, troubled children are likely to attend the same schools as other disadvantaged children. One must rule out the possibility that the disruptive student and his classmates misbehave due to some common unobserved factor.

We overcome these problems in this study by utilizing a unique data set in which information on students' academic achievement and behavior is linked to domestic violence cases filed by their parents. This data set allows us to identify troubled children more precisely than we could by using conventional demographic measures. Moreover, we can identify children who are troubled for specific family reasons and not because of their peer group. This allows us to measure peer effects free from the reflection problem, providing a rare opportunity to test the notion that even one "bad apple" impedes the learning of all other students.

Our results confirm, first, that children from troubled families, as measured by family domestic violence, perform considerably worse on standardized reading and mathematics tests and are much more likely to commit disciplinary infractions and be suspended than other students. We find also that an increase in the number of children from troubled families reduces peer student math and reading test scores and increases peer disciplinary infractions and suspensions. The effects on academic achievement are greatest for students from higher-income families, while the effects on behavior are more pronounced on students who are less well-off. The results of our analysis provide evidence that, in many cases, a single disruptive student can indeed influence the academic progress made by an entire classroom of students.

Data

In our study, we use a confidential student-level data set provided by the school board of Alachua County in Florida. This data set consists of observations of students in the 3rd through 5th grades from 22 public elementary schools for the academic years 1995–96 through 2002–03. The Alachua County school district is large relative to school districts nationwide, with roughly 30,000 students; in the 1999–00 school year, it was the 192nd largest among the nearly 15,000 districts nationwide. The student population in our sample is approximately 55 percent white, 38 percent black, 3.5 percent Hispanic, 2.5 percent Asian, and 1 percent mixed race. Fifty-three percent of students were eligible for the federal free or reduced-price lunch program.

The test-score data consist of reading and mathematics scores from the Iowa Test of Basic Skills and the Stanford 9, both nationally normed exams. Reported scores indicate the percentile ranking on the national test relative to all test-takers nationwide. Because the reading and math results are so similar, we use a composite score calculated by taking the average of the math and reading scores. The average student in our data scored at the 53rd percentile, or just above the national norm.

Yearly disciplinary records, which include incident type and date, are available for every student in our sample. Incidents are reported in the system if they are serious enough to require intervention by the principal or another administrator. We focus on three behavioral outcomes from these records: the probability the student was involved in a disciplinary incident, the total number of disciplinary incidents per student, and the probability the student was suspended. In a typical year, 18 percent of the students in our data set were involved in a disciplinary incident, the average student was involved in 0.56 incidents, and 9 percent of students were suspended.

We gathered domestic violence data from public records information at the Alachua County courthouse, which included the date filed and the names and addresses of individuals involved in domestic violence cases filed in civil court in Alachua County between January 1, 1993, and March 12, 2003. Cases are initiated when one family member (typically the mother) petitions the court for a temporary injunction for protection against another member of the family (most often the father or boyfriend). Students were linked to cases in which the petitioner's first and last name and the first three digits of the residential address matched the parent name and student's residential address in the annual school record. In that way, we were able to identify the set of students who could be matched to a domestic violence case from 1993 to 2003. In total, 4.6 percent of the children in our data set were linked to a domestic violence case filed by a parent, split equally between boys and girls. Sixty-one

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percent of these children were black, while 85 percent were eligible for subsidized school lunches.

Students linked to a domestic violence case performed at lower levels academically and were more likely to have been involved in a disciplinary incident than other students in the district. Boys exposed to domestic violence, for example, performed at the 37th percentile academically, as compared with the 52nd percentile for boys who were not exposed. Forty-three percent of boys exposed to domestic violence were involved in a disciplinary incident, as compared with 25 percent of boys who were not exposed. Girls exposed to domestic violence performed at the 41st percentile academically and 19 percent of them were involved in a disciplinary incident, as compared with the 55th percentile and 11 percent for girls who were not exposed to domestic violence (see Figure 1).

Double Trouble (Figure 1)

Students exposed to domestic violence do less well on standardized tests and are more likely to misbehave in school than their peers.
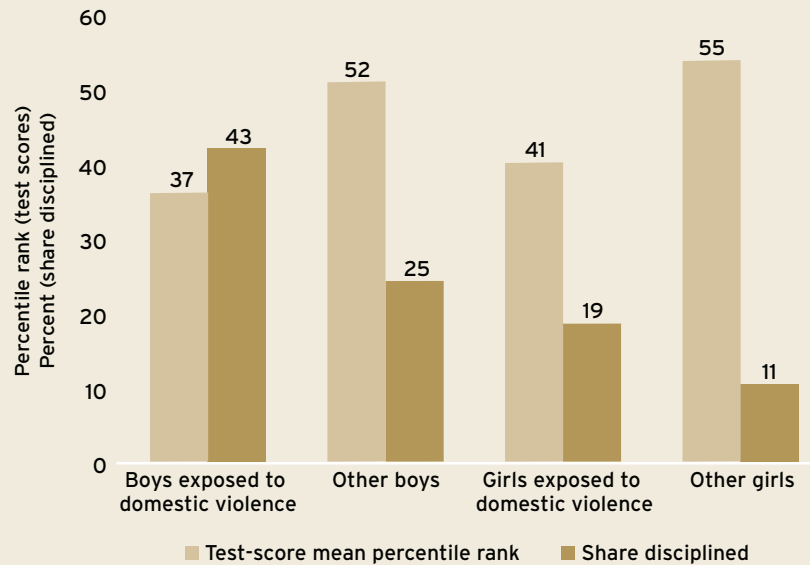
SOURCE: Authors' calculations

Measuring Peer Effects

Our main analysis examines the impact of troubled children on their peers. We assume there is no feedback loop in which a student's peers *cause* the domestic violence in the household. This assumption appears reasonable, as none of the most likely determinants of domestic violence can plausibly be caused by an elementary school child or her peers.

To overcome the bias that results from self-selection into peer groups, our main analysis compares cohorts of students in the same grade at the same school in different years. For example, we compare the 3rd graders in a given school this year with the 3rd graders in the same school last year to see whether the cohort with more students exposed to domestic violence had higher or lower student achievement. Restricting the comparisons to students attending the same school ensures that any effects we observe reflect the impact of troubled students and not the fact that schools with more such students differ in unobserved ways from other schools. We measure peer domestic violence at the cohort level (that is, across all students in a grade at a school) as opposed to the classroom level due to the possible sorting of students into classrooms according to their achievement and behavior. We also adjust for differences among students in a large set of individual characteristics—most importantly whether particular students had been directly exposed to domestic violence—but also race, gender, subsidized lunch status, and median zip code income.
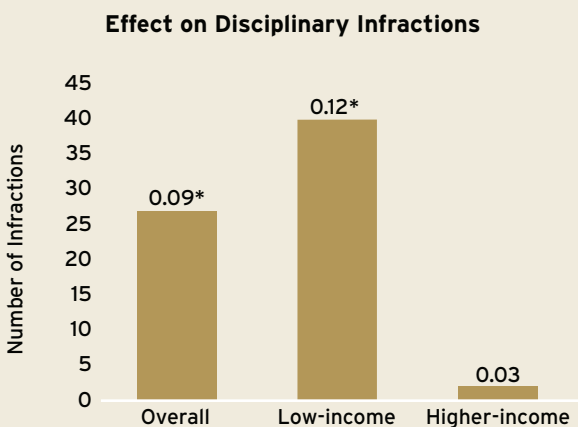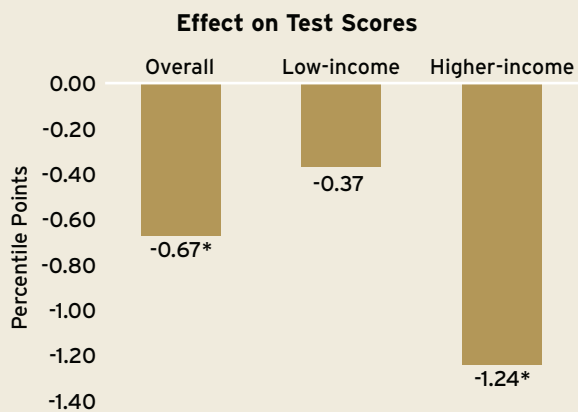
Results

Our results indicate that troubled students have a statistically significant negative effect on their peers' reading and math test scores. Adding one troubled student to a classroom of 20 students results in a decrease in student reading and math test scores of more than two-thirds of a percentile point (2 to 3 percent of a standard deviation). The addition of a troubled peer also significantly increases misbehavior of other students in the classroom, in effect causing them to commit 0.09 more infractions than they otherwise would, a 16 percent increase. These are effects that could accumulate over time if the same students are repeatedly exposed to troubled peers.

These average effects also mask a few interesting differences across student groups. We find that troubled peers have a large and statistically significant negative effect on higher-income children's math and reading achievement, but only a small and statistically insignificant effect on the achievement of low-income children. However, we find the opposite pattern for disciplinary outcomes. The presence of troubled peers significantly increases the misbehavior of low-income children, but does not increase the disciplinary problems of higher-income children (see Figure 2).

Results of examining the differential effects of peers from troubled families by race and gender show relatively large negative and statistically significant test-score effects on white boys

Income Matters (Figure 2)

The presence of troubled peers in school lowered achievement and increased behavioral problems among students as a whole. For students from low-income families, these effects were concentrated on behavior rather than on achievement, while the opposite was true for children from higher-income families.

Effect on Test Scores

Effect on Disciplinary Infractions

Note: The bars in both charts represent the causal effect of adding one troubled student to a classroom of 20 students. * indicates that the effect is statistically significant at the 5 percent level or greater.

SOURCE: Authors' calculations

Finally, we examined whether troubled boys affect their peers differently than do troubled girls. Across all outcome variables, both academic and behavioral, the negative peer effects appear to be driven primarily by the troubled boys, and these effects are largest on other boys in the classroom. The results indicate that adding one troubled boy to a classroom of 20 students decreases boys' test scores by nearly 2 percentile points (7 percent of a standard deviation) and increases the probability that a boy will commit a disciplinary infraction by 4.4 percentile points (17 percent). Apparently, troubled boys generate the strongest adverse peer effects, and other boys are most sensitive to their influence.

Testing Key Assumptions

Of critical importance to our method is the assumption that students are not systematically placed into or pulled out of a particular grade cohort within a school depending on the domestic violence status of the student or his peers. For example, if parents who really value education were more likely to pull their children out of a cohort with a particularly high proportion of peers from troubled families, such nonrandom selection would cause us to erroneously attribute lower performance to the presence of the troubled peers.

We performed several additional analyses to probe the robustness of our results to this critical assumption. As a first test for nonrandom selection of students into or out of particular schools and cohorts of students, we examined whether peer family violence appears to have an effect on cohort size or student characteristics such as race, gender, and income. In the absence of nonrandom selection, we expect to find no correlation between these characteristics and the peer family violence variables. This is indeed what we find.

Next, we noted that some parents may be more likely than others to put their children in private schools or move to a different school zone because of a particularly bad cohort, but that parents may be less likely to pull one child out of the school due to a particularly bad cohort when that child has a sibling in the same school. When we calculated peer effects only on children with siblings in the school, the results were essentially the same as those for the full sample.

One might also be concerned that some families are, for some reason, unable to remove their children from cohorts with a large number of troubled peers. To check this potential cause of nonrandom selection, we calculated results based only on comparing students to their siblings. We found that the sibling in the cohort with more children from troubled families has lower test scores and more disciplinary problems. These within-family results are roughly two-thirds the size of the estimates for the full sample, but the differences between the two sets of results are not statistically significant.

and statistically insignificant effects on black boys, black girls, and white girls. Adding one troubled peer to a classroom of 20 students reduces white boys' reading and math scores by 1.6 percentile points and black boys' reading and math scores by 0.9 percentile points (the effects on girls are negligible). Troubled peers increase disciplinary problems for all subgroups except for white girls. The effects are largest for black girls. One troubled peer added to a classroom of 20 students increases the probability that a black girl commits a disciplinary infraction by 2.2 percentage points (an increase of 10 percent over what would otherwise be the case).

For a final check, we added controls for a full set of cohort-level variables, including race, gender, participation in the federal subsidized lunch program, and median zip code income. These variables control for any potential changes in cohort characteristics not captured by our full set of individual controls in the main analysis. In addition, this allows us to examine whether the presence of children exposed to domestic violence is merely a proxy for other peer characteristics, such as family income. The results indicate that the negative peer effects are not likely driven by observable factors, such as family income, that are correlated with domestic violence.

Collectively, these tests provide strong evidence that our findings are not the result of families changing schools in response to the number of children from troubled families in their child's grade at an assigned school.

Discussion

In addition to knowing how children from troubled homes affect their peers through interaction with their cohort at school, one may also wish to know the precise way in which the troubled families cause the peer effects. This is a particularly challenging task given that researchers have consistently found, as we have, that domestic violence is correlated with other negative family characteristics, such as poverty, unemployment, low levels of education, and substance abuse. While we cannot conclusively attribute the effects found to the causal effect of domestic violence per se, we can exploit the timing of the domestic violence filings to provide suggestive evidence of whether the negative spillovers are due to domestic violence or some other factor correlated with it.

Specifically, we examine whether the negative spillovers associated with children from troubled families are smaller *after* the parent files the case than *before* the case is filed. Survey research shows that on average, violence had occurred in the family for more than four years prior to the reporting of the incident. However, 87 percent of the respondents indicated that the reporting of the incident "helped stop physical abuse." Consequently, if domestic violence itself is causing the negative spillovers on the child's classmates, then we would expect the spillovers to be smaller when the parent of the peer had

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already filed for the injunction against domestic violence.

To investigate whether exposure to domestic violence is the potential mechanism through which the spillovers occur, we constructed two peer domestic violence variables: reported and as yet unreported violence. By definition, reported domestic violence means that the petition for the injunction was filed before the student test was taken and unreported domestic violence signals that the filing occurred after the test date.

We find substantially larger effects for the proportion of peers with unreported domestic violence (that is, those whose parents had not yet filed for the injunction) than for those with past domestic violence. For example, the test-score effects for troubled boy peers on boys are statistically insignificant for reported violence, while they are large and highly significant for unreported violence. The larger peer effects for unreported domestic violence suggest that the violence in the home may itself be playing a role in driving the effects. However, we remain cautious with this interpretation, as we have no direct information regarding the details of the family environments for students in our sample.

Conclusion

Our findings have important implications for both education and social policy. First, they provide strong evidence of the validity of the "bad apple" peer effects model, which hypothesizes that a single disruptive student can negatively affect the outcomes for all other students in the classroom. Second, our results suggest that policies that change a child's exposure to classmates from troubled families will have important consequences for his educational outcomes. Finally, our results provide a more complete accounting of the social cost of family conflict. Any policies or interventions that help improve the family environment of the most troubled students may have larger benefits than previously anticipated.

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