UNIVERSITY of HOUSTON
COLLEGE OF EDUCATION
Education Research Center

POLICY BRIEF

JULY 2022 | No. UH 011

Evaluation of the Community Youth Development Program in Texas

By Rabia Telli, Texas Policy Lab, Rice University

Executive Summary

The purpose of this study is to evaluate the impact of one of Texas's long-standing positive youth development programs. The Community Youth Development (CYD) program, created in 1995 and implemented at the zip code level, aims to prevent juvenile delinquency and improve school performance and engagement. In this study, we empirically investigate to what extent being eligible for the CYD program influences behavioral and academic outcomes using individual-level administrative data sets and employing a difference-in-differences strategy. We find no significant evidence that being eligible for the CYD program positively impacts behavioral and academic outcomes.

Background

The Community Youth Development (CYD) program was created in 1995 to prevent conditions that lead to juvenile delinquency. The Texas Department of Family and Protective Services (DFPS) administers and funds programs that provide prevention-based services such as tutoring, mentoring, recreation, and after-school activities in communities with the highest incidence of juvenile crime. Eleven zip codes were initially selected. The program expanded to 13 zip codes in 1998, then 15 zip codes in 2000. CYD launched seven additional zip codes in 2017 and two more in 2020, for a total of 25 as of 2020.[1] (See box on the next page for a list of zip codes.) Since 2008, the Prevention and Early Intervention division of DFPS has administered the CYD program to an average of 17,400 youth each year.[2]

1 The original zip code 76106 was split into two zip codes by the USPS in 2007 as 76106 and 76164.

2 Data are compiled from the Texas DFPS annual reports and data books.

KEY FINDINGS

Being eligible for the CYD program has a small nonsignificant effect on students' behavioral outcomes. It is associated with a small reduction in the absence rate, a 0.25 percentage point decrease. In contrast, it is associated with a small increase in the suspension rate, a 0.15 percentage point increase.

Program eligibility has a negative nonsignificant effect on students' test performance, decreasing by about 0.02 standard deviations in the mean standardized math and reading test scores.

Our findings do not imply that the CYD program is ineffective. For further research, it is necessary to collect data that tracks and monitors program participants and nonparticipants. It is not possible with our employed methodology and available data to determine whether the CYD program reaches its target group living in disadvantaged neighborhoods and changes this group's behavior and academic outcomes.

CYD program services are provided to youth ages 6 to 17 who live or attend public school in one of the designated zip codes, with the target age being 10 to 17 years old. The program includes recreational services such as sports, music, arts, and cultural activities; academic support services

such as tutoring, learning techniques, and college/career preparation; and life skills classes such as conflict resolution, anger management, and time management. CYD services are designed to address community needs and conditions that lead to juvenile crime. Hence, communities select and fund specific prevention services according to their local needs. While the distribution of funds and program content may vary from site to site, the basic program structure and activities remain similar. These services are provided at no fee without regard to family income, and participation is voluntary.

Few studies have evaluated the impact of positive youth development (PYD) programs designed as randomized controlled trials (RCT). Even though a vast literature has documented that interventions aimed at early childhood are more effective at promoting human capital, hence creating larger improvements at a later age in long-term life outcomes (Attanasio et al., 2020; Cunha & Heckman, 2007; Cunha et al., 2010; Heckman et al., 2013), recent research on programs designed to promote positive youth development during adolescence provides promising evidence on their effectiveness (Cook et al., 2014; Heller et al., 2017; Lavecchia et al., 2020; Oreopoulos et al., 2017; Rodríguez-Planas, 2012; Rodríguez-Planas, 2017; Schwartz et al., 2021). However, most PYD programs are not subject to an RCT and have not been rigorously evaluated. The impact of these programs on educational and labor market outcomes is still relatively unknown. This research is the only study that causally evaluates the effect of the CYD program and contributes to relatively small literature evaluating the impact of PYD programs.

Data and Methodology

The analysis focuses on 1) the effect of being eligible for the CYD program on students' absence and suspension rates and 2) the effect of being eligible for the CYD program on students' performance on standardized tests. This analysis requires understanding what would have happened to the youth eligible for the CYD program if the program was not implemented. Since we do not observe either program participation status or zip code of residency, we follow several steps to conduct this analysis: First, we restrict our analysis to the zip codes where CYD was implemented in 1998, 1999, and 2000.[3] This restriction allows us to have stu-

CYD PROGRAM ZIP CODES

Community Youth Development administers multiple programs in several counties:

Harris County: one in Houston (77081) and one in Pasadena (77506)

Dallas County: four in the city of Dallas (75216, 75217, 75210, and 75241)

Hidalgo County: one in McAllen (78501) and one in Pharr (78577).

Cameron County: Brownsville City (78520)

Bexar County: San Antonio (78207)

El Paso County: city of El Paso (79924)

Galveston County: city of Galveston (77550)

Nueces County: Corpus Christi (78415)

Potter County: Amarillo (79107)

Travis County: Austin (78744)

McLennan County: two in Waco (76707 and 76705)

Webb County: Laredo (78046)

Lubbock County: three in the city of Lubbock (79415, 79403, and 79404)

Tarrant County: two Fort Worth zip codes (76106 and 76164)

Willacy County: Lyford (78569) and Raymondville (78580)

Data are compiled from the Texas DFPS annual reports and data books.

3 These zip codes are **McLennan County**, Waco (76707), where the program was in effect in the school year 1997–1998; **Lubbock County**, the city of Lubbock (79415), where the program was in effect in the school year 1998–1999; and **Dallas County**, the city of Dallas (75217), and **Harris County**, Pasadena (77506), where the program was in effect in the school year 2000–2001.

TABLE 1

Descriptive Statistics for the Matched School Sample

	Non-CYD Schools		*CYD Schools*		
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean Difference p-value**
Total Number of Students	820.13	415.22	860.53	461.61	0.65
Hispanic	463.59	293.92	538.59	349.90	0.24
Black	228.67	280.09	224.69	237.25	0.94
White	120.20	180.44	91.84	104.14	0.40
Hispanic (percent)	57.68%	24.82%	63.55%	19.75%	0.23
Black (percent)	27.04%	25.15%	25.03%	20.78%	0.68
White (percent)	14.47%	14.40%	10.83%	9.72%	0.19
Free Lunch Eligible	486.05	161.46	567.53	204.74	0.02
Free Lunch Eligible (percent)	63.80%	15.61%	70.37%	13.18%	0.04
FTE Teacher	49.80	25.54	50.14	26.08	0.95
Number of Schools	92		32		

dent-level data for earlier years to employ a difference-in-differences strategy. Second, we obtain data on school characteristics and the zip code information of schools from the Common Core of Data (CCD), a database maintained by the National Center for Education Statistics. We use the CCD to select the schools in CYD zip codes (CYD schools) and the comparison school sample in non-CYD zip codes (non-CYD schools). Specifically, we match public schools in CYD zip codes that had the program implemented in 1998, 1999, or 2000 to a comparable control group of schools in non-CYD zip codes using the following matching variables derived from the CCD: total number of students, racial/ethnic categories (the percentages of Hispanic students, students who are Black, and students who are White), the percentage of students who are free-lunch eligible, and the full-time equivalent number of teachers within the school. We require complete agreement on several variables between CYD and non-CYD schools, such as the type of the local school district, school type, school level, highest grade offered in the school, and the school's locality (urban vs. rural).[4]

Table 1 reports the descriptive statistics for the

4 We match the schools by using the school year 1996–1997 as the base year of matching for the zip code 76707; 1997–1998 for the zip code 79415; and 1999–2000 for the zip codes 75217 and 77506. We match CYD schools to the nearest non-CYD schools according to the Mahalanobis distance measure as described in Rubin (1980). We choose five matches per CYD school and consider matching with replacement so every non-CYD school can be selected as a match for more than one CYD school.

school sample after discarding non-CYD schools that are not selected as matches and CYD schools that are not matched. On average, the student body in CYD schools was 64% Hispanic, 25% Black, and 11% White. Our comparison schools closely match the percentage of Hispanic, Black, and White students with 58%, 27%, and 14% respectively. Approximately 70% of students were eligible for the free-lunch program in CYD schools, relative to 64% in non-CYD schools. The full-time equivalent number of teachers was almost identical between CYD and non-CYD schools. We cannot reject the hypothesis that the difference of the means in the variables between the two groups is not different from zero, except for the number and percentage of free-lunch eligible students based on the p-values. Altogether, the statistics suggest that there are no systematic differences on average.

As a next step, we merge the school sample to the student-level data housed at the University of Houston Education Research Center to identify students who attend the selected matched schools. The student sample includes students born between 1980 and 1995 whose public-school outcomes are observed from grade three to grade eight between the school years 1994–1995 (1998–1999 for suspension rates) and 2007–2008. We restrict the sample to students who have at least one valid observation of an academic or behavioral outcome during grades observed in the selected schools. We focus on several behavioral and academic outcomes: absence rate, suspension rate, and math and reading test scores. Absence rate is defined as the percentage of school days the student was absent. Suspension rate is defined as the percentage of school days the student was in suspension. We normalize all math and reading scores to have a mean of zero and a standard deviation of one in each year for each grade level and test type for the entire state of Texas.[5]

5 Texas students took the Texas Assessment of Academic Skills (TAAS; 1994–2002) and the Texas Assessment of Knowledge and Skills (TAKS; 2003–2008) exams during our analysis period. Students attending public schools are required to take the math and reading tests from third through eighth grades. Students might take the exams multiple times in a school year. We use the highest score among them.

Program-eligible students are more likely to be Hispanic (57% non-eligible versus 61% eligible) and less likely to be White (15% non-eligible versus 8% eligible).

Table 2 describes the time-invariant characteristics of four different groups: students attending non-CYD schools, students attending CYD schools, non-eligible students (control group), and eligible students (treatment group). Students attending CYD and non-CYD schools are not quite different from each other at the mean. However, program-eligible students are more likely to be Hispanic (57% non-eligible versus 61% eligible) and less likely to be White (15% non-eligible versus 8% eligible). Students born before 1985 are not eligible for the CYD program because of the program's eligibility criteria and implementation year.

Finally, we use a difference-in-differences methodology to estimate the effect of being eligible for the CYD program. We compare the difference in the outcomes of students who attend schools in the CYD zip codes before and after the program's implementation to the difference in the outcomes of students from the selected non-CYD schools. The validity of this research design requires that student outcomes would have followed a similar pattern as in the non-CYD schools if CYD had not been implemented. We conduct an event study analysis to check whether this identification assumption is satisfied. We regress the outcomes of interests on variables that indicate the time relative to CYD implementation and their integration with the CYD indicator. Figures 1 and 2 plot the coefficients and 95% confidence intervals from robust standard errors clustered by schools from these regressions. They show that absence rate, suspension rate, and test scores did not trend dif-

TABLE 2

Descriptive Statistics of Time-Invariant Characteristics of the Student Sample

	Non-CYD Schools (CYD = 0)		*CYD Schools* (CYD = 1)		*Control Group* (CYD#post CYD = 0)		*Treatment Group* (CYD#post CYD = 1)	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Gender (Male)	0.510	0.500	0.507	0.500	0.508	0.500	0.514	0.500
Hispanic	0.578	0.494	0.573	0.495	0.572	0.495	0.617	0.486
White	0.148	0.355	0.120	0.325	0.149	0.356	0.080	0.272
Black	0.266	0.442	0.300	0.458	0.270	0.444	0.298	0.457
Immigrant	0.039	0.194	0.035	0.184	0.039	0.193	0.036	0.186
Home Language: Spanish	0.273	0.445	0.295	0.456	0.273	0.446	0.312	0.463
Home Language: English	0.690	0.463	0.660	0.474	0.689	0.463	0.641	0.480
Birth Year 1980	0.006	0.077	0.006	0.075	0.007	0.081	0	0
Birth Year 1981	0.020	0.141	0.017	0.130	0.022	0.146	0	0
Birth Year 1982	0.034	0.181	0.029	0.168	0.037	0.188	0	0
Birth Year 1983	0.043	0.203	0.040	0.196	0.047	0.212	0	0
Birth Year 1984	0.053	0.223	0.056	0.230	0.059	0.236	0	0.008
Birth Year 1985	0.064	0.244	0.068	0.252	0.072	0.258	0.001	0.025
Birth Year 1986	0.079	0.269	0.080	0.271	0.087	0.282	0.007	0.083
Birth Year 1987	0.080	0.271	0.083	0.275	0.086	0.280	0.034	0.181
Birth Year 1988	0.081	0.272	0.090	0.286	0.085	0.278	0.065	0.246
Birth Year 1989	0.081	0.272	0.089	0.285	0.081	0.273	0.092	0.289
Birth Year 1990	0.087	0.281	0.092	0.289	0.083	0.276	0.127	0.333
Birth Year 1991	0.087	0.282	0.091	0.288	0.080	0.272	0.154	0.361
Birth Year 1992	0.082	0.275	0.071	0.257	0.073	0.260	0.143	0.350
Birth Year 1993	0.079	0.270	0.069	0.254	0.070	0.255	0.138	0.345
Birth Year 1994	0.074	0.261	0.066	0.248	0.065	0.247	0.132	0.339
Birth Year 1995	0.053	0.224	0.054	0.225	0.047	0.211	0.108	0.310
Sample Size	**263,240**		**67,305**		**296,931**		**33,614**	

FIGURE 1

Event Study: Behavioral Outcomes

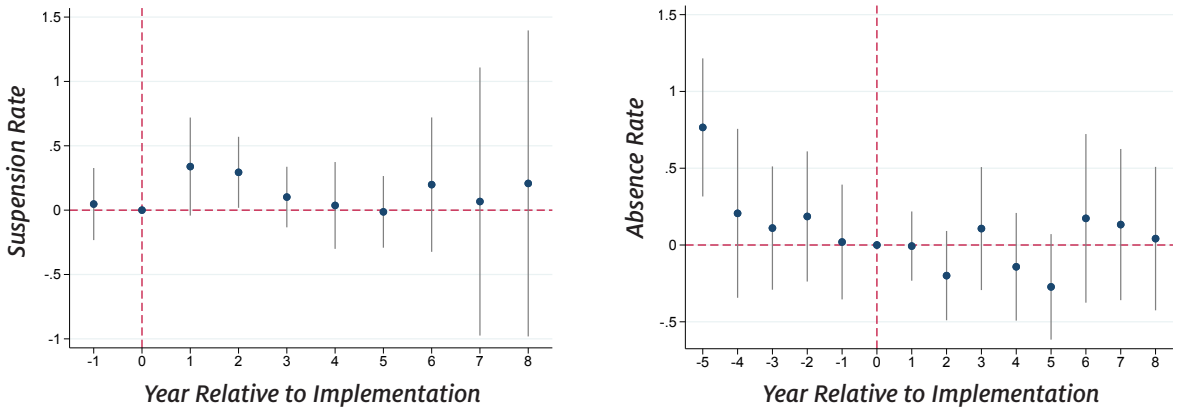
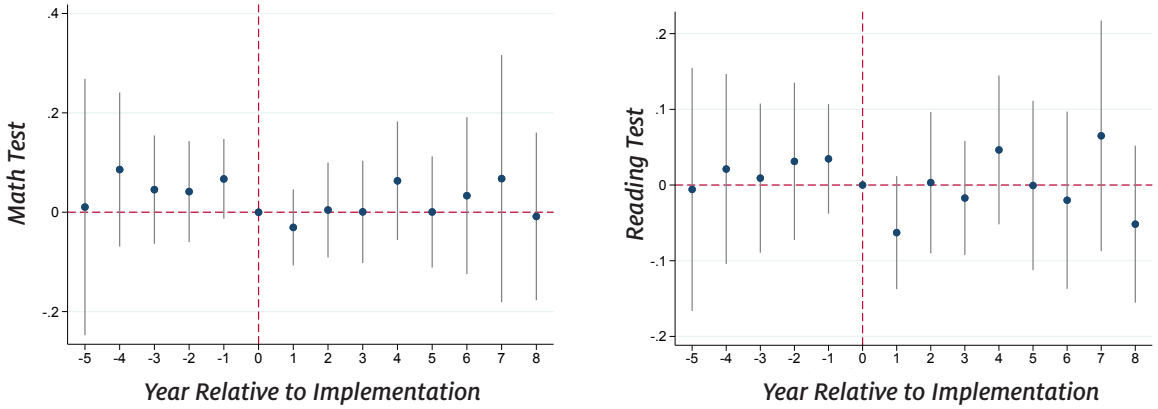


FIGURE 2

Event Study: Academic Outcomes



ferently in the CYD and non-CYD schools before the program's implementation.

Results

Table 3 presents results for the effect of CYD program eligibility on behavioral and academic outcomes. It shows the estimated coefficients on the CYD indicator, equal to one for the students observed in the CYD schools after the program implementation, zero otherwise. All specifications control for baseline student characteristics: gender, race, language spoken at home, immigrant status, free and reduced-price lunch eligibility, and birth year. They also include grade, school, and time-fixed effects. Column 1 indicates that program eligibility has a small negative effect on the absence rate—a 0.25 percentage point reduction in the absence rate. In contrast, column 2 shows a positive impact on the suspension rate—a 0.15 percentage point increase in suspension rate. Both effects are not significantly different from zero. We should note that the sample size counts differ for each specification since

TABLE 3

Effect of CYD Eligibility on Academic and Behavioral Outcomes

	Dependent Variable			
	Absence Rate (1)	**Suspension Rate (2)**	**Math Test Score (3)**	**Reading Test Score (4)**
Community Youth Development	-0.250	0.145	-0.028	-0.022
	(0.146)	(0.109)	(0.038)	(0.040)
Covariates	Yes	Yes	Yes	Yes
Fixed Effects	Yes	Yes	Yes	Yes
Observations	321,171	212,387	269,125	266,737
Adj. R-squared	0.129	0.100	0.157	0.144

suspension rates are observed from the 1998–1999 school year. Columns 3 and 4 indicate that program eligibility has a negative effect on test performance. There is a nonsignificant decrease by about 0.02 standard deviations in the mean standardized math and reading test scores. Sample-size counts for these outcomes reflect that not all students take the tests. We also check whether CYD eligibility has a differential effect by race, gender, and free and reduced-price lunch eligibility status. The results are not reported here and are quite similar. It is still unclear whether the program eligibility positively impacts different gender, race, and economically disadvantaged student subgroups.

We also explore whether being eligible for CYD generated similar effects when it was expanded in 2017 to seven new zip codes by using students born between 2000 and 2007.[6] The results for this complementary analysis also suggest that it is unclear whether the CYD program is effective at the mean. Overall, we cannot detect a significant effect of program eligibility on youth attending schools in the designated CYD zip codes.

Policy Recommendations

We need to stress that our findings do not imply that the CYD program is ineffective. The major methodological challenge for our analysis is that we do not observe either program participation status or zip code of residency. Since the CYD program is open to students attending school or residing in one of the designated zip codes, students residing in one of the treated zip codes (CYD zip codes) might be enrolled in one of the control schools (non-CYD schools in our school sample). This fact implies that our estimates may be underestimating the impact of CYD eligibility. For further research, it is necessary to collect data that tracks and monitors program participants and nonparticipants. It is not possible with our employed methodology and available data to determine whether the CYD program reaches its target group living in disadvantaged neighborhoods and changes this group's behavior and academic outcomes.

6 For this analysis, we should keep in mind that there are only two years of after-program data. This fact might preclude drawing precise conclusions.

References

Attanasio, O., Cattan, S., Fitzsimons, E., Meghir, C., & Rubio-Codina, M. (2020). Estimating the production function for human capital: Results from a randomized controlled trial in Colombia. *American Economic Review, 110*(1), 48–85.

Cook, P. J., Dodge, K., Farkas, G., Fryer Jr., R. G., Guryan, J., Ludwig, J., Mayer, S., Pollack, H., & Steinberg, L. (2014). *The (surprising) efficacy of academic and behavioral intervention with disadvantaged youth from a randomized experiment in Chicago.* Institute for Policy Research, Northwestern University.

Cunha, F., & Heckman, J. (2007). The technology of skill formation. *American Economic Review, 97*(2), 31–47.

Cunha, F., Heckman, J. J., & Schennach, S. M. (2010). Estimating the technology of cognitive and noncognitive skill formation. *Econometrica, 78*(3), 883–931.

Heckman, J., Pinto, R., & Savelyev, P. (2013). Understanding the mechanisms through which an influential early childhood program boosted adult outcomes. *American Economic Review, 103*(6), 2052–86.

Heller, S. B., Shah, A. K., Guryan, J., Ludwig, J., Mullainathan, S., & Pollack, H. A. (2017). Thinking, fast and slow? Some field experiments to reduce crime and dropout in Chicago. *The Quarterly Journal of Economics, 132*(1), 1–54.

Lavecchia, A. M., Oreopoulos, P., & Brown, R. S. (2020). Long-run effects from comprehensive student support: Evidence from Pathways to Education. *American Economic Review: Insights, 2*(2), 209–24.

Oreopoulos, P., Brown, R. S., & Lavecchia, A. M. (2017). Pathways to education: An integrated approach to helping at-risk high school students. *Journal of Political Economy, 125*(4), 947–84.

Rodríguez-Planas, N. (2012). Longer-term impacts of mentoring, educational services, and learning incentives: Evidence from a randomized trial in the United States. *American Economic Journal: Applied Economics, 4*(4), 121–39.

Rodríguez-Planas, N. (2017). School, drugs, mentoring, and peers: Evidence from a randomized trial in the US. *Journal of Economic Behavior & Organization, 139*, 166–81.

Rubin, D. B. (1980). Bias reduction using Mahalanobis-metric matching. *Biometrics, 36*, 293–98.

Schwartz, A. E., Leos-Urbel, J., McMurry, J., & Wiswall, M. (2021). Making summer matter: The impact of youth employment on academic performance. *Quantitative Economics, 12*(2), 477–504.