Giving a Second Chance: an After-School Program in a Shanty Town Matched against Parent Type

Article · January 2012

1 author:

Alejandro Cid
Universidad de Montevideo
61 PUBLICATIONS   **179** CITATIONS

Giving a Second Chance: an After-School Program in a Shanty Town Matched against Parent Type

Alejandro Cid

2012

Giving a Second Chance: an After-School Program in a Shanty Town Matched against Parent Type

Alejandro Cid
Universidad de Montevideo

and

Martín A. Rossi[*]
Universidad de San Andrés

July 2nd, 2012

Abstract

Most discussion of after-school programs in shanty towns has focused on estimating their average effects. The results of these programs are inconclusive and the explanation may be that the effects are heterogeneous. In this paper, we study the influence of how heterogeneity in the type of parents involved in the program affects the performance of their children at school. We measure performance at school according to academic achievement, behavior and grade retention. In line with previous literature, we employ the number of books at home as a proxy for parent type. By using random assignment to evaluate an after-school program in a developing-country shanty town, we find that it is effective in raising children's school achievement for those with a *committed parent type*. Thus, this paper provides evidence that the knowledge of the distribution of effects is crucial to guiding public policy and it is not enough just to change the environment in which young people spend their after school hours, increasing time in safe, supervised settings, it is also necessary to take parenting type into account.

JEL Classification: I38; I28.

Keywords: after-school; education; impact evaluation; randomized experiment.

I. Introduction

There's an important body of literature trying to estimate the impact of after-school programs on child behavior and educational achievement. Most previous research has focused on average effects and has produced mixed evidence. Some studies find after-school children outperform other students, some find they are no different, and some even find negative effects from after-school programs.

One likely explanation for these mixed results is that the effects of after-school programs are heterogeneous. Our hypothesis is that the impact of after-school programs depends on parent type. One could roughly argue that in a population like a shanty town, one could find two types of individuals, (i) those who live there and represent a *neglectful type* of parent – they typically show a lack of responsibility and conscientiousness, have no great aspirations and are uncommitted to the education of their family, for example-, and (ii) those who are *committed* to their children's future well-being through education but live in that poor area because of bad luck (*committed individuals who had bad luck in their lives and have been unable to escape the shanty town).

The argument in favor of the correspondence between after-schooling and *committed parents* is not obvious. Is it a good policy to suggest that responsible and dedicated parents should leave their children many hours a day in an after-school program? Wouldn't it be better for those children to remain at home in contact with their *committed parents*? Should policy be directed to the children of *neglectful parents*?

As a proxy for parent type, we employ the number of books at home. Previous findings suggest that the presence of books at home may be a measure of a family's cultural capital and a predictor of personal and family habits such as the relative preference for educational activities over other activities, parental guidance on school

matters, the encouragement to explore and discuss ideas and events, the language employed at home, and parents' aspirations. This cultural capital could in turn guide social mobility and the accumulation of human capital.

To study whether the impact is heterogeneous according to parent type we exploit a randomized program in a shanty town in Uruguay. Since 1997, the *Los Pinos* Education Center has been developing an after-school program called *Apoyo Escolar* (School Support) in a neighborhood that shows one of the highest rates of poverty, school drop-out rates, grade retention, drug consumption, and domestic violence in Uruguay. Every day, children attend *Apoyo Escolar* after their school time, and have lunch, do sports, and receive homework support for five hours. In the short run, the program seeks to improve academic performance and behavior in the classroom.

To sum up, by using random assignment to evaluate an after-school program in a developing country, we find that it *is* effective in raising children's school achievement for those who have *committed parents*. Thus, this paper provides evidence that the knowledge of the distribution of effects is crucial to guiding public policy and it is not enough just to change the environment in which young people spend their after school hours.

The rest of the paper is as follows. Section II reviews related literature. Section III describes the program and explains the design of the experiment. Section IV presents the econometric model and results. Section V concludes.

II. Related literature

Impact evaluations of after-school programs have grown rapidly in recent years, spurred on by the pressure to guide policy choices by empirical evidence. After-school programs have been hypothesized to improve child behavioral and educational achievements, but most of these studies find mixed evidence on outcomes such as

students' achievement (math, language and reading scores), behavior in the classroom, motivation and social skills.

Some studies find after-school children outperform other students (Dumais, 2009; Arbreton et al., 2008; Durlak and Weissberg, 2007; Lauer et al., 2006), some find they are no different (Zief, Lauver and Maynard, 2006; Zimmer, Hamilton and Christina, 2010; Bodilly and Beckett, 2005), and some find negative effects from after-schools (James-Burdumy, Dynarski and Deke, 2008; Grolnick et al., 2007; Black et al., 2009).

Previous literature provides possible explanations for these mixed findings, including (i) the possible inexistence of a sequenced set of activities designed to achieve the targeted skill objectives (Apsler, 2009); (ii) the limited duration of the intervention evaluated: the fact that new skills cannot be acquired instantaneously, it takes time and effort to develop new behaviors, and relatively complicated skills must often be broken down into smaller steps and mastered sequentially (Durlak and Weissberg, 2007), besides which it takes time – often several years – for programs to be fully implemented and they undergo substantial changes in features, operation, and content during the first several years of development (Mahoney and Zigler, 2006); (iii) the existence of negative peer associations (Zief, Lauver and Maynard, 2006) that may provide "deviance training" or may reinforce deviant attitudes and antisocial behavior (Rorie et al., 2010); (iv) children may be more fatigued and act up because they are spending more time away from their households, or could be misbehaving due to programs tolerating behavior for which students would be disciplined during regular school (James-Burdumy, Dynarski and Deke, 2008); (v) the possible low degree of contact with after-school educators (Grolnick et al., 2007); (vi) the necessity of staff effectiveness in creating emotional bonds with youth participants (Gottfredson et al., 2010); (vii) the fact that several other accepted goals of after-school programs were not considered adequately (e.g., positive youth development, parent satisfaction, facilitating work, peace of mind) (Mahoney and Zigler,

2006); (viii) the "crossover" condition (also known as "contamination") that usually refers to the inadvertent application of the treatment to the control/comparison group or the inadvertent failure to apply the treatment to persons assigned to receive it (Mahoney and Zigler, 2006): families randomly selected into the control condition may still be in need of after-school services and will most likely secure other after school arrangements, diluting differences between experimental and control conditions if children receive any benefits from alternative arrangements (Riggs and Greenberg, 2004); (ix) it is not yet clear whether the relationship between attendance rates and after-school outcomes is linear or whether there is a point of diminishing returns after which attendance has a negative effect (Riggs and Greenberg, 2004); (x) it may be not enough to merely decrease children's idle time, but rather it may be necessary to explore the type and quality of extracurricular involvement available to today's children (Weisman et al, 2003).

Another explanation not addressed in the literature is that the average effect of after-schools can be mixed because of heterogeneity. Hence, it is important to answer questions related to the variation in the impact across individuals or groups of individuals. In particular, we study the influence of heterogeneity in parent type on the performance of their children at school. In a shanty town, parents may have faced pressure to conform to peer norms and it may influence their *type*. For instance, when parents move to a shanty town, they can choose to associate with "*committed*" parents and adopt their norms, or befriend "*neglectful*" parents and adopt their norms to gain acceptance. The "marginal man" hypothesis is employed by Fryer, Khan, Levitt, and Spenkuch (2008). This figure is depicted as someone who lives in a bi-cultural environment and is caught between two conflicting cultures thus causing inner conflict. Thus, each parent may care about popularity/social esteem in their neighbourhood and we could assume that social esteem depends on whether or not an individual is an accepted member of the peer group. Parents are able to choose whether to identify with

4

neglectful or *committed type parents*. Type is unobservable, but others can infer an individual's type from their observable choices.

We employ the number of books at home as a proxy for parent type. Extensive research has been conducted to examine the relationship between student achievement and home environment such as the number of books. Liu and Withford (2011) suggest that the presence of books at home may be a measure of family cultural capital and a predictor of personal and family habits such as the relative preference for educational activities over other activities, parents' guidance on school matters, the encouragement to explore and discuss ideas and events, the language employed at home, and parents' aspirations. This cultural capital could in turn guide social mobility and the accumulation of human capital (Ozkal, Tekkaya, Sungur, Cakiroglu and Cakiroglu, 2011; Korat, Klein and Segal-Drori, 2007; Ngorosho, 2011).

To sum up, it is important to answer the question of who after-school programs are most effective for and under which circumstances. Most previous evaluations focus exclusively on the average effect, leaving unanswered questions related to the variation in their impact across individuals or groups of individuals. In particular there's no precedent in previous literature about the interaction effect of attending after-school and parent *type* (*committed type/neglectful type*) on children's education in shanty towns.

III. Program and experiment design

Previous literature on impact evaluation of after-school programs shows a great variety of activities covered by this name but many of these programs differ to a great extent in timing, aims, target population, staff qualifications, supplier (school or community) and neighborhood characteristics (Beets et al. 2009; Brown Cross et al. 2007; Dzewaltowski 2010; Eble et al. 2010; Engels et al. 2005; He, Linden, and

MacLeod 2009; Grolnick et al. 2007; Gottfredson, Cross and Soulé 2007; Gottfredson 2004; Gottfredson et al. 2005; Tebes et al. 2007).

Because of this variability, it is important for the researcher to define properly the program object of study: in the present study, we concentrate on the impact evaluation on children's educational attainments particularly of those programs that operate on a regular basis after school time, that include some academic support services besides recreational activities and that serve primarily low-income students of poorly-performing elementary schools.

The Program

The *Los Pinos* Education Center is a non-governmental organization at Casavalle, a neighborhood in the suburbs of Montevideo. This neighborhood shows one of the highest rates of poverty, drop-out rates from school, grade retention, drugs consumption, and domestic violence in Uruguay. Since 1997 *Los Pinos* has been developing a program called *Apoyo Escolar* that is focused on male children between six and 15 years old. Children enter *Apoyo Escolar* when they are in first grade of primary school and are allowed to stay until they complete Middle School (nine years in all).

Currently 220 children attend the program at *Los Pinos* daily, distributed in nine different groups by age and school grade. Through the academic year, from Monday to Friday, children attend regular school in the morning and *Los Pinos* in the afternoon (five hours a day). At *Los Pinos* they have lunch, practice sports, and receive support with their homework. *Los Pinos* also has a computer room where children can improve their computer skills. The program includes sports competitions (mainly athletics and rugby) against private schools from non-poor neighborhoods in order to allow them to interact with children from different social backgrounds. In addition, during most of the vacations, children attend *Los Pinos* in the afternoon for recreational activities.

Furthermore, twice a year *Los Pinos* organizes three-day trips to the countryside, and also to other cities that they would most likely never have visited otherwise.

In order to attend *Los Pinos*, each child has to pay ten dollars monthly (the average salary in this neighborhood is 200 dollars per month); if he is not able to afford it, a relative has to help once a week in the cleaning of the building. The remaining funding of *Los Pinos* comes from public funds (20 percent) and private donors (80 percent).

Zief, Lauver and Maynard (2006) and Aizer (2004) offer some mechanisms through which after-school programs could improve outcomes for participants, changing the environment in which young people spend their after school time—for example, increasing time in safe, supervised settings; academic support; participating in enriching activities; creating more positive peer associations; and increasing parental involvement in home and school activities. Also, Turmo et al. (2009) emphasize other positive mechanisms and point to the fact that after-school programs provide pupils with more learning opportunities than the experiences that school provides. The hypothesis is that after-school care schemes offer a better knowledge-basis for learning than school and home environments only- that is, attending an after-school program can mean more time spent on homework (quantity of learning) and higher concentration on learning due to professional supervision by the after-school staff (quality of learning). Thus, after-school programs have been hypothesized to improve child behavior and educational achievements.

The experiment's design and data

Randomized impact evaluations are the gold standard but they are few in comparison with other non-experimental approaches in previous literature (regression with control variables, propensity score, the building of an artificial matching control group and evaluation of the treated pre and post-after-school programs without a control group,

among them). The non-experimental approaches have a potentially serious problem of bias due to the existence of unobservable characteristics that affect both the participation in after-school activities and educational outcomes.

In the present study, for the evaluation design we used randomized trials. Advertising for the after-school program *Apoyo Escolar* was aimed at finding male children starting their first grade of Primary School in 2010. Thus, during November and December 2009, promoters from *Los Pinos* visited eight local schools and provided the directors of these schools with brochures about *Apoyo Escolar* to distribute among parents. During February 2010 promoters went to poor neighborhoods around *Los Pinos* visiting house by house (as well as going to local stores), distributing brochures of *Apoyo Escolar*. From this advertising effort, 54 candidates showed up. All the candidates were interviewed with their parents or mentor at *Los Pinos*.

The selection process was as follows: (i) all 54 applicants (and their parents) were subject to an interview. In this baseline survey we collected data on a wide array of both the children's characteristics and their household characteristics. To facilitate future contact we also asked for information such as personal email, postal address, and telephone number; (ii) from this population, 28 applicants were randomly assigned to the treated group. The remaining candidates were assigned to the control group.

A necessary condition for the validity of the impact evaluation results is that every pre-treatment characteristic must be balanced between the control group and the treated group (the balancing condition). Thus, once the random allocation was performed, the balancing condition was checked. In case of significant differences at the ten percent level in mean pre-treatment characteristics between control and treated groups the random assignment procedure was repeated until we obtained an allocation that fulfills the balancing condition.

[Insert Table 1]

Table 1 reports the balancing condition and includes, besides baseline characteristics that are directly available from the personal survey, two composite variables built as indexes. One of these composite variables is a *Wealth Index.* Children from wealthier households have more material resources to support their educational performance, so we created an index of relative wealth using the information from the personal interview that provides data about goods in the household such as a hot water heater, refrigerator, colour television, cable TV service, washing machine, dishwasher, microwave, computer, internet connection and automobile for personal use. For each good i, we have constructed a dummy variable d_i that takes the value one if the house has this good or service, and zero if it does not.

$$Wealth\ index = \frac{\sum_i [1 - mean(d_i)]\ d_i}{\sum_i [1 - mean(d_i)]}$$

Therefore, as an indicator of relative welfare, the formula above assigned greater weight for those goods or services that are less frequent in households.

The other composite variable is *Some Kind of Disability*, a dummy variable that takes the value one if the child has permanent vision difficulties, or has permanent hearing difficulties, or has permanent difficulties to learn, talk or walk, and zero otherwise.

The main source of data on outcomes is the official school report that provides educational outcomes for each student. In Uruguay each student attending primary school receives a final school report in December and this report provides information about the variation in academic performance and behavior between March and December (the academic year in Uruguay). Both academic performance and behavior in the classroom take the values 1 (*Non satisfactory*) to 10 (*Excellent*). In order to pass the academic year,

each student must achieve at least a value of 4 (*Good*) in academic performance. Thus, we used the final report of December 2010 to obtain data on these educational outcomes.

As usual in random evaluations of educational programs in extremely poor regions, some observations suffered attrition at December 2010: six students of the original treatment group and two students of the control group. Though we found some outcomes for them via phone calls, we were not able to collect the complete official school report in those eight cases due to different causes (family problems that derived in changing address and refusal to give the data due to lack of confidence). We compare the pre-treatment characteristics between the individuals that have suffered attrition and those students who remain in the treated/control groups. Since fifteen from eighteen variables remain balanced, baseline data provides a measure of the similarity of these two groups. Only three variables are not balanced (*children's age*, *grade retention in 2009* and *both biological parents at home*).

Like most empirical evaluations in shanty towns, this research experienced a rate of non compliance, and Table 2 reports this rate. The presence of non compliant students introduces bias, so we employ intention-to treat and instrumental variables to address this issue.

[Insert Table 2]

IV. Econometric model and results

The primary purpose of this study is to determine the causal effect of attending *Apoyo Escolar* on children's academic achievement and behavior. Formally we want to estimate the following equation:

$$Y_i = a + bT_i + e_i \qquad (1)$$

where Y_i is any of the outcomes of interest for student i (*Grade Retention, Variation of Academic Performance, Variation of Behavior at Classroom*), T_i is a dummy variable

that takes the value of one for students assigned to the treated group and zero otherwise, b is the parameter of interest, and e_i is the error term.

To address the endogeneity of attending the after-school program *Apoyo Escolar* in educational outcomes, we estimate equation (1) also by Two Stage Least Squares (TSLS), where the endogenous dummy variable *Attended Apoyo Escolar* is instrumented by the exogenous *Randomly Assigned to Apoyo Escolar*. First-stage estimates are reported in Table 3. The point estimate of the coefficient on *Randomly Assigned to After-School* is significantly different from zero and indicates that the probability for attending *Apoyo Escolar* is 23 percentage points higher for those randomly selected to the after-school program compared to those who were randomly selected to the control group.

[Insert Table 3]

Firstly, in order to draw general conclusions in a context of multiple outcomes, in Table 4 we present findings of a summary index that aggregate information over the three educational outcomes. To construct this summary index we followed the procedure used in Kling, Liebman and Katz (2007) and Dal Bó and Rossi (2011). This overall index is defined to be the equally weighted average of z-scores of its components, with the sign of each measure oriented[1] so that more beneficial outcomes have higher scores. The z-scores are calculated by subtracting the control group mean and dividing by the control group standard deviation.

[Insert Table 4]

---

[1] Summary Index = (-grade retention +variation of academic performance +variation of behavior at school)/3, all components built as z-scores.

In Table 4, the results of column (1) reports the intent-to-treat (ITT) estimates, the average treatment effect (OLS) estimates, and the TSLS estimates of the impact of the after-school *Apoyo Escolar* on the index that aggregate *Grade Retention, the Variation of Academic Performance and the Variation of Behavior at Classroom*. As Table 4 shows in column (1), the average estimates do not report any significant impact on primary school first grade children of *Apoyo Escolar* at the end of the first academic year. These results are consistent with previous literature that find little or null effects of after-school programs.

Before the start of the program, studying qualitative information provided by educators of the after-school program, we include proxy variables of parent commitment to education in the baseline survey. In interviews with educators, we find that they consider that parental engagement in their children's education is a key issue to warrant the positive outcomes sought by the program *Apoyo Escolar* at *Los Pinos*. In addition, educators tell us that, despite their experience accumulated in the first 13 years of *Los Pinos*, they find very difficult to measure "parents' engagement with education" because it does not seem to be related to parents' education, or to the fact of living with both biological parents, or parents' status in the labor market. Therefore, in the parents' interview preceding the draw, we incorporate questions seeking observable pre-treatment characteristics that may reasonably be signals of "parents' engagement". We include four variables to employ as a proxy for parents' commitment to education: (i) frequency of parents' attendance to school meetings; (ii) frequency of homework revision by parents; (iii) frequency of parents and children having lunch/supper together; (iv) a dummy variable that takes the value one if the family reports having more than ten books (different from textbooks and simple magazines) at home. Among these four variables, only the variable *More than Ten Books at Home* has variability –in the other three variables, nearly all parents answer the same- and we employ it.

Hence, following the findings of previous literature, we assume that the variable *More than Ten Books at Home* could be positively associated with parental commitment and engagement with their children's educational future (*committed parents*). This allows us to go beyond the simple average effects that have so far dominated the literature.

Thus, we now focus our attention on the interaction effect:

$$Y_i = a + b(T_i \times M_i) + cT_i + dM_i + e_i \qquad (2)$$

where Y_i is any of the outcomes of interest for student i, T_i is a dummy variable that takes the value of one for students of the treated group and zero otherwise, M_i is a dummy variable that takes the value one for the students with more than ten books at home, b is the parameter of interest, and e_i is the error term.

Column (2) in Table 4 shows that the direction of the effects of *Apoyo Escolar* matched with the proxy of parents' *type* is positive for ITT, OLS and TSLS specifications. Also, in the ITT model, the effect, on the overall index that averages together all three outcomes, is statistically significant at 1.5 percent level (and the size of this overall effect is more than one standard deviation, in comparison with the control group[2]). These results are similar when we control for the variables that are unbalanced due to attrition (*age*, *grade retention in 2009*, *both biological parents at home*)[3]. The lack of statistical power could explain, at least partly, the low significance of the TSLS specification.

Also, column (2) in Table 4 reports that the point estimate of the coefficient on *More than Ten Books at Home* –the proxy for *committed parents* - is not significantly different from zero for all specifications (ITT, OLS and TSLS). This could suggest that being

---

[2] The absolute magnitudes of the indices are in units akin to standardized test scores: the estimates shows where the mean of the treatment group is in the distribution of the control group in terms of standard deviation units.

[3] Results mentioned but not shown are available from the authors upon request.

committed parents alone is not enough and they need some form of help, an opportunity to raise their children's achievements – such as an after-school program for their kids.

The fact that attending *Apoyo Escolar* matched with being *committed parents* increases the index of overall performance may be the result of different patterns of effects over the individual outcomes. Thus, we investigate next the effects on each of the three educational outcomes.

[Insert Table 5]

As Table 5 shows, in the three specifications (ITT, OLS and TSLS), all the coefficients of the interaction variables have the expected signs: attending after-school and matching this with parents' engagement in their children's education reduces grade retention and impacts favorably on the variation of academic performance and behavior in the classroom. The ITT estimates show that the interaction variable *Randomly Assigned to After-School x More than Ten Books at Home* has a significant positive impact around 1.5 grade points[4] on the *Variation of Academic Performance* (column 4) and on the *Variation of Behavior in the Classroom* (column 6) at ten percent of significance. Also, after-school attendance matched with parent commitment seems to have an impact on grade retention. Both ITT and OLS estimates show that the interaction variable reduces the probability of *Grade Retention* by nearly 40 percent (column 2). Furthermore, all these results are similar when we control for the variables that are unbalanced due to attrition (*age*, *grade retention in 2009, both biological parents at home*)[5]. Thus, the study finds evidence that after-school programs would demand parental commitment to education. The program *Apoyo Escolar* of *Los Pinos* has a positive impact on performance at school in those children who have *committed parents*.

---

[4] Remember that both academic performance and behavior in the classroom take the values 1 (*Non satisfactory*) to 10 (*Excellent*).
[5] Results mentioned but not shown are available from the authors upon request.

V. Conclusions

We evaluated an after-school program in a shanty town by random assignment. In line with previous literature, we find no evidence of positive average effects on students' academic performance and behavior at elementary school. By employing the number of books at home as a proxy for parent type, we study the influence of heterogeneity in parent type on the performance of their children at school. We find that this after-school program is effective in raising children's school achievement and behavior for those who have *committed parents* (that is, parents that show commitment to their children's educational attainments).

One potential explanation for these findings is that after-school programs do not produce positive impacts simply by changing the environment in which students spend their after school time, increasing time in safe, supervised settings is not enough: parental involvement seems also to be crucial. This result could help to guide public policy. Akerlof and Kranton (2000) explore how to incorporate identity –self-image, ideal type, social category, self-destruction, self-realization - into models of behavior and, hence, allow an expanded analysis of parents' and children's outcomes. Parents' identity may be associated with different social categories (*committed / neglectful)* and how other parents in these categories should behave. In a world of social differences, parents may –more or less consciously- choose who they want to be, what type of person to be. Unwritten social norms are sustained by strong feelings of embarrassment, and guilt suffered from violating them. Those who seek upward mobility may be teased, mocked and reviled by their peers. Thus, parental identity can affect parent-child interactions - in particular, parents' commitment to their children's education. Given the crucial role of parent type, further research should explore how to influence it. The social categories and behavioral prescriptions may be changed, affecting identity-based preferences. This possibility

expands the scope of education policy in the study of social exclusion (Akerlof and Kranton, 2000). Might after-school programs change parent type?

Parent type may affect children's outcomes by means of cultural transmission. Intergenerational cultural transmission arguably plays an important role in the determination of many fundamental preference traits and most cultural traits and social norms such as attitudes towards education. For instance the persistence of "ethnic capital" in second and third-generation immigrants has been documented by a vast literature on immigration and ethnic capital. The pervasive evidence of the resilience of traits across generations motivates a large fraction of research on cultural transmission (Bisin and Verdier, 2010). Hence, preferences that govern children's behavior and their performance at school are partly transmitted through generations and acquired by different forms of social interaction. This may explain the channel from parent type towards children's educational outcomes.

In this first follow-up, we evaluate precisely the impact of a twelve month program on children of 6 or 7 years old. We also plan to track children and their families for a longer period in order to evaluate mid-term impacts: new skills cannot be acquired instantaneously, it takes time and effort to develop any new behaviors, and relatively complicated skills must often be broken down into smaller steps and mastered sequentially. Also, we plan to collect data on other long term outcomes, such as involvement in criminal activities, drug consumption, and participation in higher education. In this paper, we focus on the short term impact of the program (we merely need time to evaluate longer term effects).

Since *Apoyo Escolar* at *Los Pinos* is a program that includes a great variety of recreational and educational activities, in further research we should evaluate the different features behind an after-school program. This would provide a deeper picture of how these programs work, could help researchers to unravel the mechanisms behind the

positive impacts obtained and could provide educators with more tools to focus on the essential features and improve the programs.

References

Aizer, A. (2004). Home Alone: Supervision after School and Child Behavior. *Journal of Public Economics* 88, 1835–1848.

Akerlof, G. A. and Kranton, R. E. (2000). Economics and Identity. *The Quarterly Journal of Economics*, 115(3), 715-753.

Apsler, R. (2009). After-School Programs for Adolescents: A Review of Evaluation Research. *Adolescence,* 44(173), 1-19.

Arbreton, A., Sheldon, J., Bradshaw, M., Goldsmith, J., Jucovy, L. and Pepper, S. (2008). Lessons Learned from the Coral Initiative. Findings from an Independent Evaluation of a major After-School Initiative. *Public/Private Ventures.*

Beets, M. W., Beighle, A., Erwin, H. E. and Huberty, J. L. (2009). After-School Program Impact on Physical Activity and Fitness. A Meta-Analysis. *American Journal of Preventive Medicine* 36(6), 527–537.

Bisin, A. and Verdier, T. (2010). The Economics of Cultural Transmission and Socialization. *NBER* Working Paper Series, N. 16512

Black, A. R., Somers, M., Doolittle, F., Unterman, R. and Grossman, J. B. (2009). The Evaluation of Enhanced Academic Instruction in After-School Programs: Final Report (NCEE 2009-4077). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Bodilly, S. and Beckett, M. K. (2005). Making Out-Of-School-Time Matter Evidence for an Action Agenda. RAND Education and RAND Labor and Population for The Wallace Foundation.

Dal Bó, E. and Rossi, M. (2011). Term Length and Effort of Politicians. *Review of Economic Studies,* 78(4), 1237-1263.

Dumais, S. A. (2009). Cultural Capital and Concerted Cultivation: the Relationship between Long-Term Participation in Activities and Educational Outcomes. *Paper presented at the annual meeting of the American Sociological Association Annual Meeting, Hilton San Francisco, San Francisco, CA*, Aug 08, 2009

Durlak, J. A. and Weissberg, R. P. (2007). The Impact of After-School Programs that Promote Personal and Social Skills. CASEL (Collaborative for Academic, Social and Emotional Learning).

Dzewaltowski, D. A., Geller, K. S., Rosenkranz, R. P. and Karteroliotis, K. (2010). Children's Self-Efficacy and Proxy Efficacy for After-School Physical Activity. *Psychology of Sport and Exercise*, 11, 100–106.

Eble, A., Mann, V., Bhakta, P., Lakshminarayana, R., Frost, Ch., Elbourne, D. and Boone1, P. (2010). The Stripes Trial - Support to Rural India's Public Education System. *Trials*, 11:10. Study Protocol.

Engels, H., Gretebeck, R. J., Gretebeck, K. A. and Jiménez, L. (2005). Promoting Healthful Diets and Exercise: Efficacy of a 12-Week After-School Program in Urban African Americans. *Journal of the American Dietetic Association,* 105, 455-459.

Fryer, R. G., Khan, L., Levitt, S. D. and Spenkuch, J. L. (2008). The Plight of Mixed Race Adolescents. Forthcoming in *Review of Economics and Statistics.*

Gottfredson, D., Cross, A., Wilson, D., Rorie, M. and Connell, N. (2010). Effects of Participation in After-School Programs for Middle School Students: a Randomized Trial *Journal of Research on Educational Effectiveness*, 3(3), 282-313.

Gottfredson, D. C., Cross, A. and Soulé, D. A. (2007). Distinguishing Characteristics of Effective and Ineffective After-School Programs to Prevent Delinquency and Victimization. *Criminology & Public Policy*, 6(2), 289–318.

Gottfredson, D., Kumpfer, K., Polizzi-Fox, D., Wilson, D., Puryear, V., Beatty, P. and Vilmenay, M. (2005). The Strengthening Washington D.C. Families Project: A

Randomized Effectiveness Trial of Family-Based Prevention. *Prevention Science*, 7(1), 57-74.

Gottfredson, D. C., Gerstenblith, S. A., Soulé, D. A., Womer, S. C. and Lu, Sh. (2004). Do After School Programs Reduce Delinquency? *Prevention Science,* 5(4), 253-266.

Grolnick, W. S., Farkas, M. S., Sohmer, R., Michaels, S. and Valsiner, J. (2007). Facilitating Motivation in Young Adolescents: Effects of an After-School Program *Journal of Applied Developmental Psychology*, 28, 332–344.

He, F., Linden, L. L. and MacLeod, M. (2009). A Better Way to Teach Children to Read? Evidence from a Randomized Controlled Trail. *Working paper, Columbia.*

James-Burdumy, S., Dynarski, M. and Deke, J. (2008). After-School Program Effects on Behavior: Results from the 21st Century Community Learning Centres Program National Evaluation. *Economic Inquiry*, 46(1), 13–18.

Kling, J., Liebman, J., and Katz, L. (2007). Experimental Analysis of Neighborhood Effects, *Econometrica* 75(1), 83-119.

Korat, O., Klein, P. and Segal-Drori, O. (2007). Maternal Mediation in Book Reading, Home Literacy Environment, and Children's Emergent Literacy: a Comparison between Two Social Groups. *Reading and Writing*, 20(4), 361-398**.**

Lauer, P. A., Akiba, M., Wilkerson, S. B., Apthorp, H. A., Snow, D. and Martin-Glenn, M. (2006). Out-Of-School-Time Programs: A Meta-Analysis of Effects for At-Risk Students. *Review of Educational Research,* 76(2), 275-313.

Liu, X. and Whitford, M. (2011). Opportunities-to-Learn at Home: Profiles of Students With and Without Reaching Science Proficiency. *Journal of Science Education and Technology*, 20(4**)**, 375-387.

Mahoney, J. L. and Zigler, E. F. (2006). Translating Science to Policy under the No Child Left Behind Act of 2001: Lessons from the National Evaluation of the 21st-Century

Community Learning Centers. *Journal of Applied Developmental Psychology*, 27, 282–294.

Ngorosho, D. (2011). Reading and Writing Ability in Relation to Home Environment: A Study in Primary Education in Rural Tanzania. *Child Indicators Research*, 4(3), 369-388.

Ozkal, K., Tekkaya, C., Sungur, S., Cakiroglu, J. and Cakiroglu, E. (2011). Elementary Students' Scientific Epistemological Beliefs in Relation to Socio-Economic Status and Gender**.** *Journal of Science Teacher Education*, 22(2), 115-127**.**

Riggs, N. R. and Greenberg, M. T. (2004). After-School Youth Development Programs: a Developmental-Ecological Model of Current Research. *Clinical Child and Family Psychology Review,* 7(3), 177-190.

Rorie, M., Gottfredson, D. C., Cross, A., Wilson, D. and Connell, N. M. (2010). Structure and Deviancy Training in After-School Programs. *Journal of Adolescence.* [web published ahead of print]

Tebes, J. K., Feinn, R., Vanderploeg, J. J., Chinman, M. J., Shepard, J., Brabham, T., Genovese, M. and Connell, Ch. (2007). Impact of a Positive Youth Development Program in Urban After-School Settings on the Prevention of Adolescent Substance Use. *Journal of Adolescent Health*, 41, 239–247.

Turmo, A., Guttersrud, O., Elstad, E. and Vegar Olsen, R. (2009). The Impact of Attending After-School Care Schemes on Science Achievement in Primary School: A Norwegian Study. *International Journal of Educational Research,* 48, 331–341.

Weisman, S. A., Soulé, S. A., Gottfredson, D. C., Lu, Sh., Kellstrom, M. A., Womer, Sh. C. and Bryner, S. L. (2003). After-School Programs, Antisocial Behavior, and Positive Youth Development: An Exploration of the Relationship between Program Implementation and Changes in Youth Behavior. University of Maryland (College Park, Md.). Department of Criminology and Criminal Justice

Zief, S. G., Lauver, S. and Maynard, R. A. (2006). The Impacts of After-School Programs on Student Outcomes. *Campbell Systematic Reviews,* 2006:3

Zimmer, R., Hamilton, L. and Christina, R. (2010). After-School Tutoring in the Context of No Child Left Behind: Effectiveness of Two Programs in the Pittsburgh Public Schools. *Economics of Education Review,* 29, 18–28.

Table 1. Pre-treatment characteristics by treatment assignment

	Treated	Control	Difference	p-value
Age (in months)	75.920	77.740	-1.810	0.359
	(6.710)	(7.798)		
Grade Retention in 2009	0.214	0.222	-0.007	0.944
	(0.417)	(0.423)		
More than 10 Books at Home	0.428	0.518	-0.089	0.513
	(0.503)	(0.509)		
Attended Preschool Program	0.357	0.444	-0.087	0.517
	(0.487)	(0.506)		
Mother's First Son	0.428	0.259	0.169	0.193
	(0.503)	(0.446)		
Drugs/Alcohol Problems at Home	0.107	0.111	-0.003	0.963
	(0.314)	(0.320)		
Some Kind of Disability	0.357	0.444	-0.087	0.517
	(0.487)	(0.506)		
Parent Unemployment	0.071	0.111	-0.039	0.616
	(0.262)	(0.320)		
Time from House to Los Pinos (in minutes)	12.141	13.001	-0.857	0.730
	(10.490)	(7.565)		
Number of Siblings	1.531	1.550	-0.019	0.954
	(1.290)	(1.250)		
Inhabitants at Home	4.600	4.700	-0.096	0.799
	(1.396)	(1.409)		
Both biological parents	0.392	0.555	-0.162	0.234
	(0.497)	(0.506)		
Mother's Age (in years)	32.280	32.330	-0.047	0.982
	(8.780)	(7.021)		
Mother's Education (in years)	7.100	7.000	0.107	0.842
	(2.131)	(1.818)		
Wealth Index	0.247	0.242	0.004	0.887
	(0.127)	(0.123)		
School Los Junquillos	0.035	0.111	-0.075	0.290
	(0.188)	(0.320)		
School 341 Artilleros Orientales	0.107	0.111	-0.003	0.963
	(0.314)	(0.320)		
School 336 Los Ángeles	0.142	0.222	-0.079	0.454
	(0.356)	(0.423)		
School 335 Capitán Tula	0.285	0.222	0.063	0.597
	(0.460)	(0.423)		
Observations	28	26		

Note: Standard deviations are in parentheses.

Table 2 – Treated and randomly assigned to after-school

After-School Attendance	Randomly Assigned to After-School		Total
	0	1	
0	19	14	33
1	7	14	21
Total	26	28	54

Table 3. First-stage regression

	Dependent Variable: After-School Attendance
Randomly Assigned to After-School	0.230^{*}
	(.131)
Observations	54

Notes: Standard errors are in parentheses. *Significant at the 10% level.

Table 4 - Effects of *Apoyo Escolar* on performance at school

	Dependent Variable: Index of performance at school	
	(1) Effect of *Apoyo Escolar*	(2) Effects of interaction
Randomly Assigned to After-School	0.0437 (0.238)	-0.493 (0.314)
More than Ten Books at Home		-0.466 (0.314)
Randomly Assigned to After-School x More than Ten Books at Home		1.160 (0.458)**
Model	ITT	ITT
After-School Attendance	0.0383 (0.240)	-0.351 (0.330)
More than Ten Books at Home		-0.277 (0.314)
After-School Attendance x More than Ten Books at Home		0.800 (0.475)*
Model	OLS	OLS
After-School Attendance	0.146 (0.798)	-5.031 (8.111)
More than Ten Books at Home		-2.577 (3.498)
After-School Attendance x More than Ten Books at Home		6.251 (8.255)
Model	TSLS	TSLS
Observations	46	46

Standard errors are in parentheses. *Significant at the 10% level; **Significant at the 5% level; ***Significant at the 1% level

Table 5 - Effects of *Apoyo Escolar* on specific outcomes

	(1) Grade Retention (effect of *Apoyo Escolar*)	(2) Grade Retention (effects of interaction)	(3) Variation of Academic Performance at School (effect of *Apoyo Escolar*)	(4) Variation of Academic Performance at School (effects of interaction)	(5) Variation of Behavior at School (effect of *Apoyo Escolar*)	(6) Variation of Behavior at School (effects of interaction)
Randomly Assigned to After-School	-0.0483 (0.112)	0.123 (0.158)	0.0833 (0.377)	-0.552 (0.507)	-0.00758 (0.370)	-0.818 (0.491)
More than Ten Books at Home		0.217 (0.160)		-0.322 (0.507)		-0.741 (0.491)
Randomly Assigned to After-School x More than Ten Books at Home		-0.340 (0.225)		1.450 (0.738)*		1.741 (0.716)**
Model	ITT	ITT	ITT	ITT	ITT	ITT
After-School Attendance	0.0119 (0.114)	0.233 (0.157)	0.254 (0.378)	0.0143 (0.531)	-0.112 (0.372)	-0.643 (0.517)
More than Ten Books at Home		0.241 (0.146)		0.131 (0.505)		-0.393 (0.491)
After-School Attendance x More than Ten Books at Home		-0.450 (0.223)**		0.469 (0.764)		1.093 (0.744)
Model	OLS	OLS	OLS	OLS	OLS	OLS
After-School Attendance	-0.180 (0.433)	1.900 (4.499)	0.278 (1.254)	-5.643 (10.476)	-0.0253 (1.236)	-8.357 (13.249)
More than Ten Books at Home		1.008 (1.832)		-2.752 (4.518)		-4.170 (5.714)
After-School Attendance x More than Ten Books at Home		-2.337 (4.539)		7.283 (10.662)		10.04 (13.484)
Model	TSLS	TSLS	TSLS	TSLS	TSLS	TSLS
Observations	49	49	46	46	46	46

Standard errors are in parentheses. *Significant at the 10% level; **Significant at the 5% level; ***Significant at the 1% level