Evaluation of the Reggio Approach to Early Education⋆

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Abstract

We evaluate the Reggio Approach using non-experimental data on individuals from the cities of Reggio Emilia, Parma and Padova belonging to one of five age cohorts: ages 50, 40, 30, 18, and 6 as of 2012. The treated were exposed to municipally offered infant-toddler (ages 0-3) and preschool (ages 3-6) programs. The control group either did not receive formal childcare or were exposed to programs offered by the state or religious systems. We exploit the city-cohort structure of the data to estimate treatment effects using three strategies: difference-in-differences, matching, and matched-difference-in-differences. Most positive and significant effects are generated from comparisons of the treated with individuals who did not receive formal childcare. Relative to not receiving formal care, the Reggio Approach significantly boosts outcomes related to employment, socio-emotional skills, high school graduation, election participation, and obesity. Comparisons with individuals exposed to alternative forms of childcare do not yield strong patterns of positive

[27]We tested the significance on interaction terms with D, but most of them were not significant. Moreover, there is no consistent trend on interaction terms across different outcome variables and comparison group specification.

and significant effects. This suggests that differences between the Reggio Approach and other alternatives are not sufficiently large to result in significant differences in outcomes. This interpretation is supported by our survey, which documents increasing similarities in the administrative and pedagogical practices of childcare systems in the three cities over time.

Keywords

Reggio approach; early childhood education; childcare; evaluation; Italian education

JEL Codes

I21; I26; I28; J13

1. Introduction

The Reggio Approach is a birth to age-6 early childhood program implemented in Reggio Emilia, Italy starting in the early 1960s. It is based on a vision of the child as an individual with rights and potential. It has been a source of inspiration for hundreds of early childhood centers around the world.[1] Reggio Approach schools have been awarded numerous prizes.[2] Despite its widespread recognition, the Reggio Approach has never been formally evaluated and there is no rigorous empirical evidence of its effects on children's life-cycle outcomes.

This paper presents an evaluation of the Reggio Approach using non-experimental comparison groups constructed from data on individuals from five different age cohorts (three cohorts of adults, one cohort of adolescents, and one cohort of children in their first year of elementary school) in three different cities: Reggio Emilia, Parma, and Padova. Although Parma and Padova are geographically close to Reggio Emilia and similar in economic and demographic characteristics, they have somewhat different preschool systems as described below. At issue is whether or not these differences are consequential. Children in each city are exposed to one of four different early childhood experiences: municipal, state, religious, or none. The Reggio Approach is delivered through the municipal early childhood schools of Reggio Emilia. Our evaluation strategy consists of comparing the outcomes of those who attended municipal institutions in Reggio Emilia (treatment group) to control groups who experienced other preschool types (including no preschool) either in Reggio Emilia or in Parma and Padova.

Our evaluation of the Reggio Approach faces several challenges. First, the non-experimental nature of the data raises concerns about bias from self-selection of individuals into different early childhood programs. We employ a number of econometric techniques in an attempt to control for potential selection problems. Second, other high-quality childcare programs are available in northern Italy that enroll many youth. In the mid-20th century, northern Italy-witnessed a rise in local early childhood programs many of which were influenced by Loris

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[1]The official Reggio Children International Network is present in 33 countries worldwide.
[2]Examples include the Danish LEGO Prize (1992), the Kohl Foundation of Chicago award (1993), the Hans Christian Anderson Prize (1994), the Mediterranean Association of International Schools award (1994), the award from the French city of Blois (2001).

Malaguzzi as well as other respected early childhood experts [1]. This rise in quality of childcare alternatives was accompanied by an increase in the preschool attendance rate of Italian children aged 3-6 years from 50% in the 1960s to 96% in the 1990s [2]. The common influences across regions in our control group pose serious problems for any analysis based on comparison groups across cities in the region. The evidence of common preschool practices currently in place in northern Italy is consistent with two interpretations: (i) that a common influence was at work across towns; or (ii) that the Reggio Approach was unique, but its essential elements diffused rapidly across towns and alternative schools within the same towns. Malaguzzi was active in promoting high-quality preschool throughout northern Italy.

In this paper, we compare individuals who attended the Reggio Approach with those who attended other center-based programs within Reggio Emilia and in our comparison cities. These estimates capture the benefits of attending the Reggio Approach relative to other center-based programs. They are generally small and statistically insignificant. However, when we compare individuals who attended Reggio Approach schools with those who did not attend any center-based program, we find beneficial effects.

In contextualizing our findings, it is essential to understand the heterogeneity in early childhood approaches across school types, cities, and cohorts. Towards this end, Section 2 presents key findings from an extensive review of the literature as well as results from a survey we conducted to quantify differences in administrative and pedagogical components among the different school types in the three cities. The survey allows us to track the evolution of differences in approaches to early childhood education across cities and across school-types within cities. Results from our survey show that non-Reggio Approach schools have historically shared many of the same features with Reggio Approach schools, and that the commonalities of these features increase over time (across cohorts). Given the overlaps in these features, it is reasonable to expect that comparisons of outcomes for Reggio Approach attendees with outcomes for those who attended alternative programs produce small, possibly negligible, treatment effects.

Results differ across age cohorts and with respect to the control group used. With the exception of some socio-emotional outcomes, we do not find any consistently statistically significant positive effects of the Reggio Approach on children and adolescents. Our most favorable comparisons are for the age-40 adult cohort when we compare Reggio Approach individuals with those from Reggio Emilia who did not attend preschool. Positive and statistically significant effects are estimated for employment, socio-emotional skills, and voting behavior. We do not reject the hypothesis that attending Reggio Approach preschools improved outcomes relative to not attending preschool.

However, when we compare outcomes for Reggio Approach attendees with those who attended alternative preschools within the city, few statistically significant effects are found. If any appear, they are found for the oldest cohorts. The lack of positive and statistically significant results remains when we make comparisons with those who attended any type of programs in other cities, especially Padova.[3] We do not reject the hypothesis that attending Reggio Approach preschools did not improve outcomes relative to attending other regional

preschools. When we compare any preschool attendance versus no attendance for each town, we find results as strong as or stronger than Reggio Emilia.[4] We reach similar conclusions for infant-toddler centers, but the data are much more sparse.

The rest of the paper is organized in the following way. Section 2 describes the Reggio Approach. We discuss childcare programs in our three comparison group cities drawing from historical records and a survey we constructed and administered to officials across the different areas. Section 3 describes the research design, including the selection of cities, the survey data collection, and the questionnaires. Section 4 presents the methods used to estimate the Reggio Approach treatment effects. Section 5 presents our estimates. Section 6 discusses the results in the context of historical information on different childcare programs.

2. Early Childhood Programs in Northern Italy

Our study compares individuals who experienced the Reggio Approach with those who participated in other northern Italian early childhood programs, as well as some who were not enrolled in any formal program. In this section, we discuss the Reggio Approach and explore the extent to which other early childhood programs in Reggio Emilia, Parma, and Padova share common features with the Reggio Approach.

2.1. Municipal Early Childhood Schools of Reggio Emilia: The Reggio Approach

Of the municipal systems in Reggio Emilia, Parma, and Padova, the Reggio Approach is notable for its investment in staffing, early inclusion of children with disabilities, and high rates of provision of early childhood services. Of the three cities, Reggio Emilia was the first to develop a municipal early childhood system. It funds and manages the largest number of municipal infant-toddler and preschool sites.[5]

In 1963, Reggio Emilia constructed its first municipal preschool for children aged 3-6 years; by 1975, the municipality offered 19 preschools [4]. In 1965, the municipality legislated funding for infant-toddler centers for children aged 3 to 36 months. The first early childcare site opened in 1971, and another 10 were added by 1979 [5]. The municipal early childhood system in Reggio Emilia thus preceded Italy's key educational reforms of 1968 and 1971 which legislated free state preschools and local provision of infant-toddler childcare.[6]

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[3]This is consistent with historical information about the lower availability of alternative preschools at this time and the unavailability of the municipal system in Padova before the age-30 cohorts.

[4]See Appendix Tables A49, A50, A52, and A53.

[5]In 1987, the Municipality of Reggio Emilia began to contract with private infant-toddler care providers to comply with mandates regarding the provision of childcare according to local family demand and increasingly stringent state laws. In the 1990s, the number of municipal "affiliated" programs expanded (due to a rise in the local birth rate) to include a network of several cooperatives serving local children aged 0-6 years. By 2007, this affiliated network includes 12 infant-toddler centers and 4 preschools sites [3]. Municipal "affiliated" programs need not follow the Reggio Approach. Survey results indicate that the municipality perceives administrative and pedagogical practices of affiliated programs to be somewhat different from the Reggio Approach, thus, we consider this a separate group during analysis. Appendix Tables A9 and A10 test if the baseline characteristics of municipal-affiliated groups in each city is significantly different from the group that attended the Reggio Approach. This is only tested for child and adolescent cohorts, as the sample size of adults who attended municipal-affiliated is very small. It is shown that Parma municipal-affiliated preschool children had better characteristics than Reggio Approach children regarding birthweight, premature birth, and mother's education level.

[6]Whether or not the Municipality of Reggio Emilia influenced the 1968 reform is problematic. Hohnerlein (2009) [4] credits Bruno Ciari (and not Loris Malaguzzi) for influencing the 1968 state reforms for public preschool. In March 1971, Reggio Emilia hosted the first secular conferences for early childhood education in Italy, "Experiences for a New School for Young Children" that were attended by 900 educators. To disseminate their new municipal approaches for the development of early childhood services throughout Italy,

The Reggio Approach is a form of progressive early childhood education shaped by Loris Malaguzzi, a psychologist and educator influenced by Dewey's model of progressive education, Vygotsky, and the psychological theories of Piaget, Erikson, Bronfenbrenner, and Bruner [6, 5]. Malaguzzi was also inspired by Bruno Ciari, who implemented Dewey's model in Bologna. Together, Ciari and Malaguzzi are credited with inciting a "municipal school revolution" in Italy by emphasizing learning, democratic participation, and social activism in early childhood, as an alternative to the welfare model and religious programming then offered by the Catholic Church [7, 5].

Under Malaguzzi's direction, in 1972, Reggio Emilia officially adopted Regulations for Municipal Schools that clarified the municipality's values for early childhood education, roles of parents and community members in municipal school management, staffing, professional development, enrollment priorities, and environmental features of preschools and infant-toddler centers [8]. These regulations incorporate many of Ciari's innovations.[7]

From its inception, the engagement of families and the community was embedded in Reggio Approach practices. For example, parents and community members participate in school management to shape policies. Parents volunteer in classrooms and community members host field trips in the city [10, 5]. To accommodate the needs of working parents, preschools and infant-toddler centers remain open five full-time days per week from September through June [11]. Many municipal sites offer programming in July, and extended day options are available throughout the school year. To support all children in the community, Reggio Approach schools prioritize admission for children with disabilities and provide occupational, physical, and speech therapy as needed [9, 8].

In preschools, incoming 3-year-old cohorts are grouped in classrooms of about 25 children. According to municipal guidelines, each classroom is assigned two full-time co-teachers (teacher-pupil ratios are 1:12-13). At least one of the two teachers remains with each classroom for three consecutive years, offering extended time for continuity of care and strong teacher-family engagement. Each preschool is also staffed by a full-time atelierista, an instructor with a background in visual arts, who helps teachers develop creative learning activities. On a biweekly basis, a pedagogista with at least a bachelor's degree in psychology or pedagogy supports the professional development for the educational staff of approximately 4-5 municipal preschools. Auxiliary site staff, such as cooks and janitors, are considered members of the educational team and participate in the biweekly training.[8]

Reggio Approach environments offer a light-filled, open interior design, furnished with natural materials and a garden. Each preschool is equipped with an atelier, or dedicated studio laboratory, where children and educators collaborate on creative instructional activities. In-house kitchens are surrounded by glass walls, to allow children to observe the meal preparation process, and is used daily for preparing meals [6, 12].

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conference proceedings were published in a reference book [5]. Thus, Malaguzzi's influence came after the early 1970s in techniques to better engage families and in pedagogy (i.e., creativity as a vehicle for learning, use of pedagogistas, arts educators) [1].
[7]As director of municipal schools in Bologna from 1966-1970, Ciari promoted the physical learning environment, strong teacher-family relationships, participatory
[8]The Reggio Approach encouraged staffing of male educators in preschools from its inception. This policy conflicted with state law until 1978 [2].

In Reggio Approach pedagogy, there is no institutionally prescribed curriculum that educators convey to children to achieve a specific academic goal, such as "school readiness." Instead, the "curriculum" is viewed as an ongoing, collaborative project among educators, children and families. Learning goals are determined by children and adults, and achieved through creative long-term projects with flexible timelines. Thus, teachers and children are jointly-viewed as researchers and co-creators of knowledge. For example, adults and children collaborate to define a question or topic to investigate. Learning follows an iterative process: provisional theories are shared, tested, and revised through socratic dialogue. Teachers observe children's development, listen, interact with children through questions and dialogue, and provide scaffolding to extend learning. Children demonstrate their emerging knowledge through expressive art forms, with aid from the atelierista. Teachers organize each child's documented work in a portfolio that is shared with children and parents over the year to observe the child's development [6, 11].

2.2. Comparisons of Early Childhood Programs in Northern Italy: 1950-2010

We were unable to perform a randomized control trial evaluation of the Reggio Approach. Instead, we compare the outcomes of children who attended Reggio Approach preschools with those who attended no preschool in Reggio Emilia and with those who attend preschools in Reggio Emilia and in other cities. The first type of comparison is based on a small sample, because many children living in Reggio Emilia attend other types of preschools. The second comparison is problematic given the common influences on alternative preschool programs. If the common influences are the essential components of the Reggio Approach, estimates of the effect of the Reggio Approach compared to other programs are uninformative about the effect of the Reggio Approach compared to no program at all.

To increase our understanding of early childhood systems in our comparison cities, and how each evolved from 1950 through 2010, we created and administered a survey to current and former educational coordinators and school administrators in Reggio Emilia, Parma, and Padova. The survey was designed to explore the extent to which the key administrative and pedagogical components of the Reggio Approach were present in each city's municipal, state, and religious early childhood programs at different points of time [10].

To confirm the results of our survey and document provision and enrollment in each of the available early childhood systems, we further collected administrative data from historical archives in Reggio Emilia and Padova. We were unsuccessful in sourcing similar records from Parma [13, 14, 15].

Together, survey results and administrative data indicate that central features of preschool programs were available to each cohort in each of the various systems listed in Table 1.

The survey inquires about key pedagogical and administrative features of the Reggio Approach. Selected components were identified by published program descriptions and confirmed by scholars of the Reggio Approach and other early childhood programs in northern Italy.[9] The list of components includes aspects of administrative program operations such as staffing, supervision, enrollment, and funding. It also considers pedagogy

and educational practices for children's learning and parental engagement. Respondents were asked to indicate whether these features of the Reggio Approach were present in their systems during different decades. Additional questions were included to understand (i) the extent of variation between municipal programs and private providers contracted by the municipality; (ii) the extent of site-level variation within systems; (iii) the perceived variation between similar systems in other cities; (iv) the sources of program funding, and (v) the services available for immigrant families. See Appendix A for the full survey.

2.2.1. Survey Results—Table 2 identifies the school systems in each city that completed our survey. We acknowledge the small sample of survey respondents. Our samples may be too limited to ensure reliable reporting of representative results. Despite this, the responses are useful for presenting information that is not readily available in the published literature.

Overall, results from the survey indicate that early childhood education systems within Reggio Emilia, as well as in Parma and Padova, share a number of common features. The general trend shows that programming and practices endorsed by the municipality of Reggio Emilia are present in other early childhood systems, albeit to different degrees and at different times.

We compare the different programs in a rough way in Figures 1a and 1b. We examine 14 administrative components and 16 pedagogical components (not all of the pedagogical components were present in the Reggio Approach). Using our survey, we calculate the number of administrative and pedagogical components that each program shared with the Reggio Approach by school type, city, and year. The evidence indicates that, over time, non-Reggio Approach programs increasingly implemented more of the pedagogical and administrative practices endorsed by the Reggio Approach. This is especially true for Parma's municipal program, and to a lesser extent for Padova's municipal program. State and religious systems report implementing more administrative practices endorsed by the Reggio Approach than pedagogical components.

The alternative systems surveyed in our study evolved to include a substantial portion of the elements in Reggio Emilia's municipal system. To better understand which features of the Reggio Approach were adopted by other programs and how they evolved, we document key components by decade and by each system in Tables 3 to 5. For the full set of survey items and responses, see Appendix A.

These tables indicate that the main components of the Reggio Approach practiced in non-Reggio Approach programs include (i) the engagement of families in school management; (ii) administrative practices for at-risk children and working families, and; (iii) the use of highly trained educational coordinators to routinely support professional development. In general, non-Reggio Approach programs are similar to each other, and different from the Reggio Approach, in providing religious teaching and following a daily program designed to guide children in acquiring knowledge of specific concepts.

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[9]See Edwards et al. (1998) [9] and Corsaro (2008) [16].

The general pattern in these tables is consistent with fairly rapid dissemination of the Reggio Approach across cities. Below, we document that treatment effects comparing outcomes of different programs across cities are found only for the oldest cohorts, consistent with the diffusion hypothesis.

2.3. State Preschools

Over time and across cities, each cohort in our sample had access to different numbers of state preschools. Those who enrolled in state programs experienced varying early childhood curricula and administrative practices.

In 1968, Law 444 ensured access to a system of free state preschool for all families that applied.[10] It is considered a key shift in Italian policies for early childhood because it legitimized state involvement in public and private education for children ages 3-6 years [4]. The law made the state responsible for school construction, materials and equipment. However, municipalities were mandated to maintain state preschools and fund the salaries of an all-female teaching staff under 35 years of age, with a vocational diploma from a 3-year high school [1].[11]

By providing funds only to construct state preschools where local demand was not met by existing non-state systems such as municipal and religious schools, Law 444 resulted in disparate numbers of state preschools in Reggio Emilia, Parma, and Padova for each of the cohorts in our evaluation sample [4]. Historical records indicate that state preschools first appeared in Reggio Emilia and Padova between 1973-1975 [13, 14, 15]. In contrast to other areas of Italy where the state is currently the largest provider of preschool education, enrollment in state preschools in Reggio Emilia, Parma, and Padova has historically been lower than enrollment in municipal and religious preschools. Although the state does not offer infant-toddler childcare, it regulates and subsidizes such programs through regional governments through Law 1044 enacted in 1971.

Reports suggest that the policy reforms and improved guidelines for state preschools (Orientamenti) were influenced by municipal programs from the region of Emilia Romagna, including Reggio Emilia, Milan, and Pistoia [1]. In particular, revised mandates for lower teacher-child ratios and higher qualifications for teacher education are proposed as key quality indicators associated with diminishing disparities between state and non-state programs by the end of the 20th century [2]. For example, between 1969 and 1980 for the age-40 and age-30 cohorts, teacher-child ratios were very low ranging from 1:17-30 for children aged 3-6 years, and teacher education took place in religious institutions.[12] In 1977, a new state law mandated inclusion in public schools for children with disabilities, shaping the educational experiences of the age-30, adolescent, and child cohorts. After 1991, attendees of state preschools in the adolescent and child cohorts experienced better physical accessibility to schools, a 1:12-13 teacher-child ratio (equivalent to that of the Reggio Approach), and teachers who were trained in universities [2]. The two younger cohorts

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[10]In state programs, parents pay only for meals and transportation.

[11]Later reforms transferred constructions costs from the state to municipalities, allowed men to work as early childhood educators, and required laureate degrees.

[12]In contrast, teacher-child ratios in the Reggio Approach were 2:25-30 from 1972 forward.

further benefited from 1991 revisions to Orientamenti stressing the contributions of social relationships for cognitive development and the value of communication for home-school relationships [1]. Six content goals for early childhood education and their associated skill-sets were also outlined by the state for the first time, including (i) body and movement; (ii) language and speech; (iii) space, order, and measure; (iv) things, time, and nature; (v) messages, forms and media, and; (vi) the self and other [17].[13] The precise methods by which these concepts should be taught were not specified in order to enable autonomy and flexibility at the school-level.

In theory, mandated administrative operations and policies for state preschools should be consistent throughout Italy. Indeed, survey results indicate that administrative operations for state preschools in Padova are similar to state preschools in Reggio Emilia, with two interesting exceptions. In Padova, parents must pay for extras such as field trips, whereas in Reggio Emilia, field trips for children in state preschools are funded by the municipality. Padova's state preschools report staffing full-time educational coordinators to provide professional development for state teachers from the 1990s forward, which is a feature of the Reggio Approach. In Reggio Emilia, however, state preschools do not report any hiring of full-time educational coordinators [10].

Survey results indicate that several administrative features of state preschools are different from the Reggio Approach (and from municipal programs in Parma and Padova). State preschools do not hire a full-time expert in the creative arts and do not set aside time for teachers to engage families. State preschools do not offer extended hours to working families. And, at 30 hours per week, state teachers work 6 hours less than their municipal counterparts who work 36 hours per week. With reduced teaching hours and reduced numbers of full-time staff, children in state preschools spend more hours with only one teacher than do children in Reggio Approach preschools (see Appendix Table A1).

In support of a spillover argument, state preschools in Reggio Emilia implement three Reggio Approach practices that are not offered in Padova's state preschools. These practices include enrollment priorities for disadvantaged families, the use of homogeneous-aged classrooms, and the focus on continuity of care for children and families by keeping at least one teacher with each cohort for three years. Overall, however, pedagogy in state preschools of both Reggio Emilia and Padova supports children's learning differently than in the Reggio Approach. State preschools (like religious preschools in all three cities, discussed next) emphasize moral development, national patriotism and family values. Survey results further indicate that teaching in state preschools (like municipal schools in Parma and Padova), is nominally influenced by somewhat different academic theories, includes religious teaching, and use programmed daily activities to guide children in learning of specific concepts (see Appendix Tables A1 to A4).

Our study evaluates whether the unique features of the Reggio Approach not in place in state preschools were effective in benefitting individuals sufficiently to cause statistically significant improvement in outcomes relative to individuals who did not receive the Reggio

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[13]In the Reggio Approach, specific skill-sets to be acquired are explicitly not stated as a requirement for early childhood education.

Approach. They appear not to do so, except possibly for the oldest cohorts where diffusion was the weakest.

2.4. Religious Early Childhood Programs

The Catholic Church is the oldest early childhood provider in Italy, offering both religious training and charitable social services for disadvantaged children since the 19th century [1]. All five cohorts in our evaluation had access to religious programs for ages 3–6 years. Of the three cities in our study, Padova has the largest number of religious preschools. Until the 1990s, religious sites in Reggio Emilia, Parma, and Padova did not offer educational infant-toddler programs. At some sites in each municipality, the adolescent cohort had access to several months of transitional programming for children over 24 months of age. From 12 months of age, the child cohort had access to infant-toddler childcare [18, 10].

To provide administrative support for independent religious schools, local federations began to assemble throughout Italy in the mid-1970s. Religious preschools within the cities of Reggio Emilia, Parma, and Padova could join a city-level federation that supported administrative operations. In contrast to the Reggio Approach, however, religious schools within the same local federation are not mandated to implement a unified pedagogy for preschool education. In this sense, the Church supports the autonomy of individual sites to determine their own methodologies [18].

Following a 1997 policy that enabled state funding for non-state programs meeting national guidelines for early childhood, the Catholic Church undertook significant efforts to quantify and achieve equitable program quality in religious schools for all ages. At some time after 1997, we can expect that policies and educational goals in religious preschools seeking equitable status began to reflect state laws and guidelines. Indeed, after 2000, the Church reports efforts throughout Italy to replace religious educators with secular teachers trained in institutions of higher education and reducing teacher-child ratios to reflect national standards [18]. Religious programs that succeeded in achieving equitable status would thus, like state preschools, reflect the influence of municipal systems in the Province of Emilia Romagna, including Reggio Emilia [4, 1].

Our study did not collect site-level data that would confirm which religious early childhood programs achieved equitable status or the timing of such a shift. Thus, we cannot determine the extent to which adolescents and children in our evaluation may have attended equitable religious schools. Survey results indicate that the majority of religious sites in all three municipalities achieved equitable status during the 2000s. We thus estimate that the child cohort likely had access to equitable religious preschools; those children who enrolled experienced a program of similar quality as children who enrolled in state preschools. We further note that parents of the youngest cohort who chose equitable religious preschools were eligible for subsidized tuition on a sliding-scale basis; prior to 2000, tuition and fees for religious preschool in all three cities was more expensive than the cost of attending municipal and state preschools.

Survey results for religious preschools are available for Reggio Emilia for the 2000s, reflecting only the experience of the child cohort in our study. In support of our spillover

story, religious preschools in Reggio Emilia are the only other system we survey that do not implement daily activities to guide children in acquiring specific content knowledge. Religious preschools in Reggio Emilia, further like Reggio Approach schools and unlike religious preschools in Padova, hire full-time educational coordinators, keep at least one of two coteachers with each cohort for three years to ensure continuity of care, and maintain homogenous-aged classrooms.[14] Religious preschools in Reggio Emilia, like the Reggio Approach, also offer extended hours for working families; include an atelier, in-house kitchen, and emphasize natural materials and open spaces; encourage parents to serve on school boards; hire full-time educational coordinators to oversee professional development; are influenced by the same academic theories; employ project-based learning with flexible timelines; set weekly hours for teachers to engage families and document children's work; and incorporate fine arts to support children's learning.

Of all the systems we survey, only Padova's religious early childhood system reports in our survey that Malaguzzi's educational practices shaped their daily program; this influence is reported only for some religious sites starting in the 2000s [10]. Regardless, survey evidence suggests that religious preschools in Padova share the following practices with the Reggio Approach. From the 1970s, schools were open 8 hours and extended hours were available for working parents; parents were encouraged to serve on school boards and weekly time was set aside for teachers to engage families. From the 1980s, teachers began to document children's work and school environments included an atelier. From the 1990s, Padova's religious schools prioritized enrollment for children with disabilities.

Unlike the Reggio Approach, pedagogy in both systems include religious teaching; an emphasis on moral development, national patriotism and family values, and; the influence of Agazzi, Froebl and Montessori. Only Padova's religious preschools follow a daily program to guide children in learning specific concepts (see Appendix Table A3). Municipal archives from 1970 indicate that children aged 3-6 years enrolled in Padova's religious preschools experienced one teacher for 34-44 children [13].

Unlike the Reggio Approach, religious preschools in Reggio Emilia and Padova do not prioritize the enrollment of children from economically disadvantaged families (see Appendix Table A2). In Reggio Emilia only, religious preschools are not open 8 hours daily; do not hire full-time atelieristas; do not include cooks and janitors in teacher trainings, and; do not provide teachers with supervision and training on a biweekly basis. However, as noted below, absence of these features appears to have no effects for the outcomes that we study.

2.5. Municipal Early Childhood Systems in Parma and Padova

Survey results, reports, and interviews indicate that the municipal systems in Parma and Padova both grow more similar to the Reggio Approach over time. From their inception, the three municipal systems share many features including a strong emphasis on the provision of high quality programming for infant-toddler centers [19]. From the 1970s forward, each city

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[14]Survey results indicate that homogenous-aged classrooms are only practiced in Reggio Emilia; all systems in Parma and Padova maintain mixed-age classrooms.

invested in staffing municipal schools for 8 hours daily, extended hours for working families, and prioritized enrollment for low-income families. Each city emphasized family participation in school management. From the 1980s forward, all three municipal school environments featured an atelier, in-house kitchens, open spaces, and the use of natural lighting and materials. Furthermore, the educational approaches in Parma and Padova were influenced by the same academic theories of psychology and education. From the 1990s forward, all cities prioritized enrollment for children with disabilities [15] and included project-based learning as a teaching method.

Of the two cities, Parma's municipal system is more similar in policy and administration to that of Reggio Emilia, sharing the same approach from the 1990s. For example, Parma reports that administrative operations, weekly scheduled hours to engage families, and professional development for teachers began to appear in the mid-late 1970s.[16] From the mid-late 1980s, Parma focused on improving management of infant-toddler centers to support the varying needs of working parents.

From a pedagogical perspective, however, survey results suggest that of all the programs we study, municipal preschools in Padova are more consistently similar to the Reggio Approach. In Padova, teachers began to document children's learning in the 1970s. By the 1980s, fine arts specialists were hired to support creative learning activities.

Where the Reggio Approach and the municipal systems in Parma and Padova differ is in the application of psychological theories to pedagogical methods. In both Parma and Padova's municipal systems, classrooms are heterogenous in age and religious instruction is provided. In contrast to the progressive Reggio Approach where content knowledge is secondary to creative expression, daily activities in the municipal preschools of Parma and Padova follow a program to guide children in learning specific concepts such as communication, culture, order, measure, space, time, nature, self, and other. In Padova, cognitive development is emphasized, teaching includes direct-instruction, and children complete worksheets as a learning activity [10].

Overall, relative to Reggio Emilia, investment in municipal early childhood programs and services for ages 0-6 by Parma and Padova occurred approximately 10 years and 15 years later, respectively.[17] In considering selection into different systems by families in each city, we note that Parma and Padova each provided fewer municipal infant-toddler centers and preschools from the 1960s forward. We further note that enrollment is highest in the municipal preschools of Reggio Emilia and Parma, whereas in Padova, it is secondary to enrollment in religious preschools [13, 14, 15]. For additional information, see Appendix Tables A1 to A4.

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[15]In Padova's municipal preschools, prioritized enrollment for children with disabilities began in the 1970s.

[16]In Padova, professional development for municipal early childhood staff began in the mid-1980s [20].

[17]Like Reggio Emilia, by 2003 both Parma and Padova contracted with local "affiliated" private providers and cooperatives to meet the childcare needs of their respective populations. Each municipality, however, contracts differently with such institutions and the extent to which their agreements reflect municipal administrative and/or pedagogical practices is unclear. For example, in Parma, all affiliated programs are secular; some are co-managed by the municipality whereas others are managed independently. In Padova, affiliated centers include both religious and secular programs. Survey results indicate that Parma and Padova each perceive their affiliated providers to operate very differently from their respective municipal approaches [10].

2.6. Summary

The Reggio Approach is not unique compared to other early childhood systems in Reggio Emilia and in neighboring cities of northern Italy. It appears, however, that the state, religious, and municipal programs we study do not incorporate all of the Reggio Approach practices.

The evidence presented below supports the finding of more statistically significant outcomes for the earliest cohorts of those educated in the Reggio Approach compared to those educated in other area preschools, but not for later cohorts. This is consistent with rapid diffusion of the Reggio Approach. The Reggio Approach infant toddler centers show even weaker results than preschools, with some significantly negative effects on education and social outcomes relative to adult cohorts who did not attend attend any infant-toddler centers.

3. Research Design

3.1. The Selection of Cities

We survey cohorts of individuals educated in Parma, Padova, and Reggio Emilia. Parma and Padova are similar to Reggio Emilia in terms of geography, population, and socio-economic structure, but they do not have the full Reggio Approach available.[18]

The cities are in close geographic proximity with Reggio Emilia, which may contribute to the plausibility of spillover effects. Parma is in the same administrative region of Emilia-Romanga. They have similar populations as seen in Figure 2. Although the population in Padova is larger than in Parma and Reggio Emilia, the trends are similar across time. The similarity in trends can also be seen in comparing the migration rates among the three cities (Figure 3). Although the emigration rate is highest in Padova and net migration rate is highest in Reggio Emilia for most of the years, general trends in emigration and immigration are similar in all cities. Levels of foreign immigration are almost identical in the three cities.

The similarities between the cities are also seen in economic terms. Reggio Emilia has an average per-capita income of 25,226 euros, Parma of 28,437, and Padova of 29,915 in 2011 [21]. Other economic information, such as unemployment, is similar across the cities as well. We present additional information on the three cities in Appendix C.

We summarize the main population statistics in Table 6 in which we present the mean and standard deviations of the population, birth rate, death rate, and net migration across years. We compare the means in Parma and Padova to those in Reggio Emilia. Parma and Padova have significantly larger populations.

Although the three cities are similar, Parma has more in common with Reggio Emilia than does Padova. This is the case for population indicators, such as those in Table 6, but also for indicators of social setting. An example of this is seen in Appendix C which has the

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[18]Other Italian cities were also considered, notably Brescia, Livorno, Modena, Perugia, Piacenza, Prato, and Ravenna. Parma and Padova were the two cities that had social and economic characteristics most similar to Reggio Emilia and were geographically close.

proportion of votes for different parties between 1953 and 1993. In both Reggio Emilia and Parma, more votes went towards the Communist Party, whereas Padova had a higher proportion of votes going towards the Christian Democrats.

The proximity and comparability of the three cities is useful for standardizing on background variables. At the same time, it compromises sharp comparisons of the effectiveness of alternative school systems given the similarities in preschool features and commonality of cultural influences.

3.2. The Survey Data Collection

Respondents were sampled from the population registries of the cities based on their year of birth. The sample was then restricted to those individuals living in the same city in which they were raised. All cohorts, except the youngest one, are restricted to individuals who are Italian citizens. In contrast, the youngest cohort includes an oversampling of immigrant children.[19] The sample from Reggio Emilia, across all cohorts, includes an oversampling of those who attended municipal schools, as this is our treatment group.

Of the reference sample, 7,176 individuals were randomly selected. Of these, 4,019 completed interviews, resulting in a response rate of 56%.[20] Table 7 provides an overview of the birth years for the different cohorts, the counts of the full sample, and the response rate. The most common reasons for non-response were that nobody was home when the surveying agency solicited and sharp refusals.

Tables 8 and 9 provide a detailed tabulation of the sample by city, cohort, and school type for both infant-toddler care and preschool attendance. They show that the number of people who do not attend any preschool and infant-toddler center decreases over time. Whereas the majority of individuals from the age-50 cohort did not attend any infant-toddler care or preschool, there are few such cases in the child and adolescent cohorts. These tables also show that the proportion of individuals attending municipal infant-toddler centers and preschools is higher in Reggio Emilia than in the other cities.[21] Note that the Reggio Approach preschools were not available for the age-50 cohort.

The structure of the cohorts allows us to study the effects of the Reggio Approach at different stages throughout the life cycle. The children in the youngest cohort were interviewed when they entered primary school, the adolescent cohort was interviewed when they complete compulsory schooling, and the adult cohorts were interviewed at different points of adulthood to measure key outcomes such as engagement in the labor market, health, and family decisions. Although this cohort structure allows us to study the evolution of the program, the other preschools also evolved making it challenging to compare the outcomes from the Reggio Approach with those from a stable control group. Our investigation in Section 2 of the early childhood education landscape helps characterize the comparison group over time.

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[19]In the adult cohorts there was no immigrant who was preschool age in the same school in which they live. In the adolescent cohort, the number was immigrant born was extremely small.
[20]We have very limited information on those who refused. Thus, we are unable to adjust for this high non-responsive rate.
[21]This is due to the construction of the sample.

Restricting the sample to individuals living in the same city in which they were raised is necessary in order to compare individuals who had the *opportunity* to attend the different types of preschool. Table 10, based on population registry data, presents the proportion of the population who were born in Italy, of Italian citizenship, and still resident in that town of birth. For all cohorts, the immigration rates are very similar for all three cities. Both treatment and control cities share a similar economic and labor market history. Nonetheless, it is worth noting that embedded in our sample selection is the potential bias due to the fact that one of the effects of preschool might be a higher propensity to emigrate.[22] In general, higher skilled individuals are more mobile. This does not necessarily bias treatment effects because migration patterns are uniform across cities.

In order to evaluate the effect of the Reggio Approach on a broad set of domains, we designed a questionnaire surveying various outcomes and dimensions of life success. Respondents were asked about family composition, fertility, labor force participation, income, schooling, cognitive ability, social and emotional skills, health and healthy habits, social capital, interpersonal ties, as well as attitudes on migrants. Three age-specific questionnaires were designed, piloted, and fielded: one for the Italian and immigrant child cohorts, one for the adolescent cohort, and one for the adult cohorts. The parents of the children and adolescents were also administered a questionnaire.[23]

4. Analysis

The challenges confronting the evaluation of the Reggio Approach are formidable. We do not have access to data from a randomized control trial. Using the comparison groups we have collected, we show in Section 2 that there is a lot of commonality in the features of the preschools in Reggio Emilia with those in the comparison group cities. Such comparisons do not evaluate the benefit of the Reggio Approach compared to non-participation in any program. Instead, they estimate the effect of the Reggio Approach compared to other approaches. The best we can hope to learn from such comparisons is whether the additional features of the Reggio Approach enhance treatment effects.

In addition, parents choose to send their children to different preschools and this has potential consequences for selection bias on estimated outcomes. The response rate of the survey is low (56%) and restriction of the survey to non-emigrant populations likely biases downward the mean levels of outcomes observed, although the effects on treatment effects for comparisons across cities is far from obvious and may be negligible. Our analysis addresses the issue of selection bias in terms of parental choices. However, due to data limitations, it does not address other sources of selection bias.

Since no single analytic approach is best, we consider several methodologies to evaluate the effect of the Reggio Approach using the survey data just described. These methodologies invoke different identifying assumptions and leverage different control groups. Any

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[22]Gertler et al. (2014) [22] show that one important benefit of the Jamaica early childhood intervention was on emigration to more prosperous countries.
[23]The questionnaire was piloted in the city of Bergamo with a sample from every cohort. A second pilot was conducted in Reggio Emilia, Parma, and Padova on a subsample of adults. The questionnaires were subsequently tested and refined to the final version, which lasts approximately 40 minutes for the adults, and 1 hour for the children and the adolescents.

treatment effect robustly estimated across these methodologies provides strong evidence in favor of the validity of the assumption of no selection bias.

We make two types of comparisons. First, we compare the Reggio Approach with other childcare systems within the city of Reggio Emilia, including the default value of no childcare at all. Section 4.1 presents various methodologies used to estimate the treatment effects of the Reggio Approach with a restriction of the sample to individuals within the city of Reggio Emilia. Second, we estimate the effect of the Reggio Approach relative to other childcare systems across cities. Section 4.2 presents methodologies used for the across-city analysis.

The Reggio Approach includes interventions at two different age ranges: (i) infant-toddler centers between ages 0-3, and (ii) preschool between ages 3–6. Our analysis of the infant-toddler centers is limited compared to our preschool analysis because attendance of infant-toddler centers was very low in the adult cohorts, even in Reggio Emilia. However, the differential provision of infant-toddler centers outside of the Reggio Emilia Approach affords us with a clean control group which we exploit. Infant-toddler centers in Parma and Padova had relatively poorer provision for the older cohorts.[24] We next describe our methodology.

4.1. Within-City Analysis

4.1.1. Framework to Evaluate Preschool—We perform within-Reggio Emilia comparisons using OLS and matching models. We compare individuals from Reggio Emilia who attended a Reggio Approach preschool to those in Reggio Emilia who attended (i) any other type of preschool (state, religious, municipal-affiliated, and other), (ii) no preschool at all, (iii) state preschool, and (iv) religious preschool. We focus on estimates of the first two comparisons in the main paper to focus on the main hypotheses of the effectiveness of the Reggio Approach. The estimates of comparisons to specific school types are reported in Appendix D.1 and summarized in Section 5. For the child cohort (age 6), it is not possible to compare Reggio Approach preschools with no preschool because the sample of individuals who did not attend preschool is so small (See Table 9).

Our OLS model takes the form for outcome Y for individual i,

$$Y_i = \alpha_0 + \alpha_1 D_i + X_i \gamma + \varepsilon_i \quad (1)$$

where i indexes individuals, D_i is an indicator for whether in dividual i attended municipal preschool, X_i is a vector of baseline control variables, and ε_i is a random disturbance. Estimates from three specifications for X_i are reported: (i) no baseline control, (ii) baseline variables selected by the Bayesian Information Criterion (BIC),[25] and (iii) the full set of available baseline variables. In Equation (1), α_1 represents the mean differences in outcomes

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[24]Among adults in Padova and Parma, only the age 30 cohorts were exposed to municipal infant-toddler centers.
[25]Since the set of baseline variables are different for child, adolescent, and adult cohorts, we use separate model selections. For the *child cohort*, the *a priori* designated control variables are male, CAPI (computer-assisted personal interview), infant-toddler center attendance, and migrant indicators, and the BIC-selected variables are (1) mother graduated university, (2) family owns house, and (3)

between the Reggio Approach and the other preschool types in Reggio Emilia, controlling for X. Under the assumption that, conditional on X, there is no systematic selection of individuals into the treatment D_i, this parameter estimates the causal treatment effect of the Reggio Approach on outcome Y.

In order to complement the OLS analysis, we also estimate two matching models: (i) a propensity score matching model that implements nearest-neighbor matching on an estimated propensity score based on a BIC-selected set of observed baseline characteristics X_i and (ii) a matching model using Epanechnikov kernel weight and X_i. These matching models are versions of non-parametric OLS and condition on the same set of X variables as OLS. These approaches match people who attended Reggio Approach preschools with people who did not attend Reggio Approach preschools based on similarities in observed baseline characteristics.

The average treatment effect (ATE) under the assumption for propensity score matching is written as:

$$E[Y(1) - Y(0)] = E\big[E\big[Y_i\big|D_i = 1, \pi(X_i)\big] - E\big[Y_i\big|D_i = 0, \pi(X_i)\big]\big]. \quad (2)$$

where the propensity score $\pi(X_i) = Pr(D_i = 1|X_i)$ (the probability of selection) is predicted for each individual i using the estimated coefficients obtained from a probit model. We average over sample X to evaluate the average treatment effect.

The k-nearest neighbor matching estimator is defined as

$$E\big[Y(1)\widehat{-Y}(0)\big]_{PSM} = \frac{1}{n}\sum_{i=1}^{n}(2D_i - 1)(Y_i - \frac{1}{M}\sum_{j \in \mathscr{J}_M(i)} Y_j) \quad (3)$$

where M is a fixed number of matches per individual based on the propensity score and $\mathscr{J}_M(i)$ is a set of matches for in dividual i.[26] The kernel matching estimator constructs a match for each treated individual using the weighted average over multiple people in the comparison group based on Mahalanobis distance and Epanechnikov kernel weight. The standard errors for both nearest neighbor matching estimator and the kernel matching estimator are derived by [23] and we apply their analysis. We examine the robustness of the estimates across methods in the results section.

4.1.2. Framework to Evaluate Infant-Toddler Care—We analyze the effectiveness of Reggio Approach infant-toddler care within the city of Reggio Emilia accounting for subsequent preschool experiences. Table 11 shows the four possible combinations of

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family income 10,000–25,000. For the *adolescent cohort*, the fixed variables are male, CAPI, infant-toddler center attendance indicators and BIC-selected variables are (i) high school is father's maximum education, (ii) university is father's maximum education, and (iii) caregiver is catholic and faithful. For *adult cohorts*, the fixed variables are male and CAPI indicators, and BIC-selected variables are (i) university is father's maximum education and (ii) number of siblings.

[26]We specify $M = 3$ in our analysis.

interventions that a child could receive, where 1 indicates attending the designated category and 0 indicates non-attendance.

There are two main methods for testing the effect of attending infant-toddler centers. The first is to compare people who did not attend infant-toddler care or preschool with people who only attended municipal infant-toddler care. Using the notation in Table 11, this comparison is between (0,0) and (1,0). The second method is to compare people who only attended municipal preschool with people who attended both municipal infant-toddler centers and preschools. That is, to compare (0,1) and (1,1). The hypotheses are formally written as

$$H_1: Y_{0,0} = Y_{1,0} \quad \text{Effect of infant-toddler care with no subsequent preschool} \quad (4)$$

$$H_2: Y_{0,1} = Y_{1,1} \quad \text{Eect of infant-toddler care with subsequent preschool} \quad (5)$$

where $Y_{i,j}$ is the outcome of the individuals who attended $i \in \{0, 1\}$ infant-toddler care and $j \in \{0, 1\}$ preschool.

For each of the two hypotheses above, we limit the sample to include only those individuals from Reggio Emilia who received the treatment combinations that are relevant to testing the hypothesis in question. Furthermore, we restrict the sample to include only one cohort at a time to see if treatment effects change over cohorts. To test these hypotheses, we estimate β_0 in the following equation:

$$Y_i^{c,h} = \alpha + \beta_0 R_i^{ITC,h} + \mathbf{X}_i \gamma + \varepsilon_i^{Reggio,h} \quad (6)$$

where $R_i^{ITC,h}$ is an indicator for attending municipal infant-toddler center for members of cohort h and $\mathbf{X}_i$ is the vector of baseline variables for individual i. To test H_1, we estimate β_0 on a sample consisting of all individuals from cohort h in Reggio Emilia who received either the (0,0) or (1,0) combination of childcare. We remind the reader that (0,0) and (1,0) is composed of those individuals who did not attend preschool. To test H_2, we would estimate β_0 for all cohort-h individuals in Reggio Emilia who were in groups (0,1) or (1,1).

The samples are small. As a result, these hypotheses cannot be tested for many groups. Table 12 shows the number of individuals available in each group necessary for this strategy. It is impossible to test H_1 in our data, because there are almost no individuals who attended municipal infant-toddler care without attending preschool (group (1,0)). While it is possible to test H_2 for several groups, the number of observations for the group (1,1) is small for the adult cohorts. The shaded regions of Table 12 highlight the groups that we use for estimation.

Analogous to what wo do in Section 4.1.1. we also estimate (i) a propensity score matching model that implements nearest-neighbor matching on an estimated propensity score based on a BIC-selected set of observed baseline characteristics X_i and (ii) a matching model using Epanechnikov kernel weight and X_i, in addition to OLS analysis for infant-toddler centers.

4.2. Across-City Comparisons

4.2.1. Difference-in-Differences

We first estimate a difference-in-differences (DiD) model that allows for cross-city comparisons of municipal preschools while controlling for permanent differences in characteristics across cities. We estimate the parameters separately for each cohort. We present comparisons between municipal schools and (i) all other types of preschools pooled together, and (ii) no preschool. We present comparisons to specific school types in Appendix D.1 and summarize the results in Section 5.

For the age-40 cohort, we compare individuals who attended Reggio Approach preschools with those in Parma or Padova who attended any type of preschool. This is because municipal childcare systems were not available in Parma and Padova for the age-40 cohort.

To illustrate, we present the comparison between between Reggio Emilia and Parma for those who either attended municipal preschool or no preschool at all. The estimation equation for this case as follows:

$$Y_i = \beta_0 + \beta_1 Reggio_i + \beta_2 D_i + \beta_3 Reggio_i * D_i + X_i\delta + \varepsilon_i^{27} \quad (7)$$

where $Reggio_i$ is the indicator for individual i having attended preschool in Reggio Emilia and D_i is the indicator for attending municipal preschool. β_3 is interpreted as the difference that remains between individuals from Reggio Emilia who attended municipal schools and those from the city who didn't attend any preschool after adjusting for city-invariant differences in characteristics of individuals who received the different early childhood experiences. In other words, β_3 is the DiD treatment effect estimator that amounts to (Reggio Emilia municipal – Reggio Emilia none) – (Parma municipal – Parma none), where the first difference captures the unadjusted difference between individuals who attended municipal and no preschool in Reggio Emilia, and the second difference captures city-invariant differences in characteristics of individuals who attended municipal and no preschool. Analogous interpretations are applied to DiD comparisons between Reggio Emilia and Padova and comparisons between municipal schools and other school types. This approach is valid under the assumption that individuals select into early childhood experiences in a manner that is comparable across the three cities, and that the difference in the outcomes between municipal and non-municipal schools would have been the same in all three cities in the absence of the Reggio Approach.

For cross-city comparisons of municipal infant-toddler care across cities, we compare people who did not attend any infant-toddler care centers but attended municipal preschool with people who attended both municipal infant-toddler care centers and preschools across Reggio and Parma or Padova. We estimate the DiD models for infant-toddler care using the highlighted group in Table 12.

4.2.2. Matching—The DiD model presented in Section 4.2.1 estimates the effect of municipal preschools relative to other types of preschool or no preschool across cities. However, selection into municipal preschools in Parma and Padova may not be analogous to selection into Reggio Approach preschools. In order to complement the DiD analysis, we estimate a propensity score matching model and a kernel matching model using Epanechnikov kernel weight to match people who attended the Reggio Approach preschools with people in Parma or Padova who attended (i) all types of preschools pooled together, including municipal preschools, or (ii) no preschool. Following [24], we also do difference in differences matching.

To illustrate, the comparison group for the matching models is limited to (i) individuals in Reggio Emilia who attended Reggio Approach preschools and (ii) individuals in Parma who attended any preschool. The purpose is to match Reggio Approach individuals with individuals who have similar propensity scores but have attended preschool in Parma. We assume that the latter group is similar to the Reggio Approach individuals except that they are not exposed to the Reggio Approach. By comparing the outcomes across the matches, the propensity score matching model estimates the effect of the Reggio Approach. Analogous interpretations are applied to comparisons for different control group specifications, including people in Padova.[28]

For cross-city comparisons of infant-toddler care, we compare individuals who attended municipal preschool and municipal infant-toddler care in Reggio Emilia against individuals from Parma and Padova who attended municipal preschool but did not attend infant-toddler care. As above, we report estimates from both a propensity score matching model and a kernel matching model using Epanechnikov kernel weights.

4.2.3. Difference-in-Differences Matching—In our final cross-city comparison strategy, we use the difference-in-differences matching estimator developed in [24]. Specifically, we use the repeated crosssection version of the estimator that is also explicitly specified in [25]. To illustrate, we present the comparison between Reggio Emilia and Parma for those who either attended municipal preschool or no preschool at all. The analysis involves estimating the following estimator:

$$\widehat{ATE}_{DID-Kernel} = \underbrace{\underbrace{\frac{1}{n_{RM}} \cdot \sum_{i \in RM} \{Y_i - \sum_{j \in RN} W(i,j) \cdot Y_j\}}_{A}}_{B} \quad (8)$$

$$- \underbrace{\frac{1}{n_{PM}} \cdot \sum_{k \in PN} \{Y_k - \sum_{l \in PN} W(k,l) \cdot Y_l\}}$$

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[28]We attempted IV and selection bias corrections but the instruments were too weak to be effective. See the discussion in Appendix F.

where the subscripts *RM*, *RN*, *PM*, and *PN* correspond to Reggio Emilia municipal, Reggio Emilia none, Parma municipal, and Parma none respectively; *n* represents the sample size for the indexed group; and $W(\cdot, \cdot)$ are Epanechnikov kernel weights based on the Mahalanobis distance between the indexed individuals constructed using baseline characteristics *X*. The first matched-difference, *A*, captures the difference in outcomes between individuals from Reggio Emilia who attended municipal preschool and those from the city who did not attend any preschool. The second matched-difference, *B*, captures the analogous difference in Parma. This strategy assumes that conditional on baseline characteristics *X*, the second matched-difference *B* captures average city-invariant differences between individuals who attended municipal preschool and those who didn't attend any preschool. To the extent that this assumption holds, subtracting *B* from the matched-difference in Reggio Emilia, *A*, removes the bias stemming from city-invariant differences in characteristics of individuals across preschool treatment categories. This allows us to interpret the DiD-Matching estimate as capturing the effect of attending Reggio Approach schools relative to not attending any preschool. Analogous interpretations are applied to comparisons between Reggio Emilia and Padova and comparisons between municipal schools and other school types.

5. Results

We present the estimates of the methods described above for a handful of key outcomes. [29],[30],[31] In addition to unadjusted p-values, we report step-down p-values for each set of estimates to account for the potential problem that arises from arbitrarily selecting "significant" results from a set of possible outcomes. We first present the results from the analysis of infant-toddler care. The results are not consistently statistically significant with some negative effects appearing for the older cohorts. We then present the results from our analysis of the preschool data. Although these results are stronger than those from the infant-toddler care, very few outcomes show statistically significant treatment effects that are robust across different estimation procedures. The strongest results are from the comparison of Reggio Approach preschool against no preschool for the age-40 cohort.

5.1. Infant-Toddler Care

Tables 13 to 16 show estimates of the treatment effect of Reggio Approach infant-toddler care compared to no treatment. The results that are robustly significant across different methods are as follows. In the child cohort, Reggio Approach infant-toddler centers had

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[29]We choose outcomes that are economically significant, outcomes that have limited missing values, and outcomes with sufficient variation across individuals. Results on the full set of outcomes are reported in Appendix D.2.

[30]A brief description of the outcomes is as follows: We rescale socio-emotional outcomes, including SDQ (Strengths and Difficulties Questionnaire) score, Locus of Control, and Depression score, so that the higher value has a more socially positive meaning; SDQ Composite – Child is reported by mother, and SDQ Composite is self-reported; IQ Score is measured using Raven's Progressive Matrices; How Much Child Likes School is a single question with three answers, where 1 means "A little", 2 means "So so", and 3 means "A lot"; High School Grade has the maximum scoring of 100; since the mean and variance is not always the same, we standardize the high school grade for each city, cohort, and high school type based on our data to have mean zero and unit variance; All the other measures reported in the estimation results are binary indicators.

[31]Since self-reported information might be prone to vary according to interviewer characteristics, we ran several robustness checks. In additional analysis, we included interviewers fixed-effects, and dropped one interviewer at a time when estimating the effect of the Reggio Approach on a subset of relevant outcomes. Overall, our results remain robust to these sensitivity checks. The sensitivity analysis results are available upon request.

significantly positive effect on IQ, obesity, and number of friends relative to no infant-toddler care in Reggio Emilia. However, the effect on IQ does not persist when compared to people who had municipal infant-toddler care in Parma or Padova. The effect on number of friends persists in a comparison to Parma children. In the adolescent cohort, Reggio Approach infant-toddler care had significantly positive treatment effects on number of friends, which persists even compared to Parma adolescents, but did not have a clear effect relative to no infant-toddler care on all other outcomes. In the age-30 cohort, Reggio Approach infant-toddler care had a significantly negative effect on IQ, high school grade, university graduation, volunteer behavior, number of friends, and trust score. However, Reggio Approach infant-toddler centers had a significantly positive effect on employment status, hours worked per week, obesity, marriage, obesity, and voting behaviors. In the age-40 cohort, the Reggio Approach also had a significantly negative effect on IQ, volunteer behavior, and number of friends. A positive effect was found for employment and hours worked.

To summarize, we have a mixed positive and negative effects of Reggio Approach infant-toddler centers that are generally different for younger and older cohorts. Reggio Approach infant-toddler centers generally have positive effect on IQ and number of friends for younger cohorts. However, Reggio Approach infant-toddler centers have a negative effect on IQ, education, and number of friends for older cohorts, whereas they generally have an increasing effect on employment and hours worked for those cohorts. Accounting for multiple hypothesis testing in the adult cohorts weakens the inference further. However, it should be noted that it was not common to send children to infant-toddler centers. Hence, the negative effects on adult cohorts may suggest that families in the adult cohorts who decided to attend infant-toddler centers might have unobserved family characteristics that might negatively affect the outcomes.

5.2. Preschool

5.2.1. Results for the Child Cohort—We next discuss the results that are robust across methods from the analysis of preschool.[32] In the child cohort (Table 17), the Reggio Approach increased the SDQ (Strengths and Difficulties Questionnaire) scores when compared to children who attended other preschools within Reggio Emilia[33]. This result becomes more positive after controlling for more background characteristics. Significantly positive effects for SDQ score are only preserved when comparing to Padova, but not Parma. When we consider the sub-scales of the SDQ as outcomes, the results are positive and significant for the emotional symptoms, positive conduct, and pro-social tests while not significant on the hyperactivity and peer problems tests (see Table A18). The Reggio Approach significantly decreased IQ when compared to comparison children group in Reggio Emilia, and significantly increased how child likes school when compared to comparison groups in all three cities. The other main outcomes do not show significant effects.

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[32]Appendix D includes more estimates including comparisons to specific school types and additional outcomes.
[33]The SDQ is a widely-used scale inquiring about emotional symptoms, conduct problems, hyperactivity/inattention, peer relationships problems, and pro-social behavior [26]. For ease of interpretation, we have converted the SDQ score such that higher values correspond to more positive outcomes.

When we compare the Reggio Approach individuals in the child cohort to those who attended religious schools (Table A11), the Reggio Approach individuals had lower IQ scores and were more obese both within Reggio Emilia and in comparison to the other cities. Compared with the state schools (Table A12), Reggio Approach children had higher IQ scores except in comparison to Parma. The SDQ score was positive when compared with Padova, but not as positive for within Reggio Emilia as was seen when comparing to all non-Reggio Approach schools. Adjusting for multiple hypothesis testing weakens the inference further.

5.2.2. Results for the Adolescent Cohort—In the adolescent cohort (Table 18), adolescents who attended the Reggio Approach were significantly less likely to be depressed according to analyses done within Reggio Emilia and DiD estimates with Parma and Padova. The Reggio Approach individuals were more likely to be obese than individuals who attended other types of preschool in Reggio Emilia, and the estimate on obesity is consistent across most of the methods. Methods across all cities show that Reggio Approach individuals were less likely to be involved in sport activities, which is consistent with the increase in obesity. Other outcomes did not have consistently significant results, except for being more bothered by migrants than others in Reggio Emilia (Table A23).

In comparison to adolescents who attended religious schools (Table A13) the IQ scores are lower for the Reggio Approach adolescents. This is consistent with the results for the child cohort. The SDQ score, capturing social-emotional skills, is higher both when considering the summary score and the individual sub-scales. Similar to the main specification, the adolescents had lower depression scores and higher obesity rates. There are fewer significant outcomes when comparing the Reggio Approach adolescents with those who attended state schools (Table A14). Additionally, those that are statistically significant are negative: SDQ scores were lower and adolescents reported less exercise and fewer friends. Adjusting for multiple hypothesis testing weakens the inference further.

5.2.3. Results for Adult Cohorts—In the adult cohorts, the results differ depending on the comparison group. The comparison with no preschool, shown in Tables 20 and 22, shows many more statistically significant estimates within Reggio Emilia. In the comparison with the other preschools, shown in Tables 19 and 21, the only outcomes that show any statistical significance within Reggio Emilia across different methods are volunteering behavior in the age-30 cohort, and high school graduation in the age-40 cohort. The OLS estimates show that the Reggio Approach individuals in the age-40 cohort are more likely to graduate from high school than others within Reggio Emilia.

There are more statistically significant outcomes when matching Reggio Approach individuals with people in Parma or Padova who attended preschools. Relative to people who attended preschools in Parma, the Reggio Approach for both adult-30 and adult-40 cohorts show a significantly positive effect on high school grade, locus of control, voting behavior, and a significantly negative effect on IQ, university graduation, obesity, volunteering behavior, and number of friends. Relative to people who attended preschools Padova for the adult-30 cohort, the Reggio Approach shows a significantly positive effect on high school grade and trust score, and a significantly negative effect on IQ and university

graduation, depression score, volunteering behavior. Relative to people who attended preschools in Padova for the adult-40 cohort, the Reggio Approach show a significantly positive effect on high school grade, employment, hours worked, marriage, and and a significantly negative effect on IQ.

In the age-30 cohort, Reggio Approach individuals had worse health along certain outcomes compared with others in Reggio Emilia who did not attend any preschool (Table A32). This is seen in reporting more cigarettes per day and more sick days in the past months. Compared with those attended other preschools in Reggio Emilia, Reggio Approach adults were less satisfied with their health and more optimistic (Table A31). These two estimates flip directions when comparing against those in Reggio Emilia who did not attend any preschool.

In comparison to those who attended religious schools (Tables A15 and A17), age-30 and age-40 adults had lower IQ scores. This is similarly seen in the child and adolescent cohorts when comparing to individuals from religious schools. Individuals in the age-30 cohort also had lower employment levels than those who attended religious schools within Reggio Emilia. Similar to the child and adolescent cohorts, the results flip directions in comparison to state schools (Table A16). More results are positive in the comparison to state schools than the comparison to religious schools. Some examples include lower obesity and more positive locus of control.

In the comparison with no preschool, Reggio Approach individuals were significantly more likely to work more hours than other groups in both the age-30 and age-40 cohorts. For age-30 cohort, the Reggio Approach show a positive effect on high school grade and voting behaviors relative to people in all three cities who did not attend preschool and a positive effect on locus of control relative to Parma no preschool group. Negative effects are found for IQ relative to no preschool group in Parma and Padova, on obesity, volunteering behavior, and number of friends relative to no preschool group in Parma. For age-40 cohort, the Reggio Approach show additional positive effect on voting behavior relative to no preschool groups in all three cities, on obesity and depression score relative to no preschool group in Reggio Emilia, and on high school grade and marriage relative to no preschool group in Parma and Padova (Table 22).

Moreover, the age-40 cohort was more stressed from work in comparison to both no preschool and other preschools, but also reported being more satisfied with work and their income than those in Parma and Padova (Tables A39 and A40).

Comparisons with the age-50 cohort that preceded the Reggio Approach give additional insight (Table 23). When simply comparing the age-30 and age-40 Reggio Approach people with age-50 Reggio people without accounting for cohort effect, the significant positive effects are shown on high school grades, voting behavior, and not being overweight. However, without eliminating cohort effect, the significantly positive effects are only shown in hours worked per week for both age-30 and age-40 comparisons, and locus of control and trust score for the age-40 comparison.

To summarize, our estimation results on adult cohorts show mixed significance and positive effect depending on the comparison group. However, some of the effects that consistently appear with different comparison group are (i) the negative effect on IQ and (ii) positive effect on voting behavior.[34] A possible explanation for the negative effect on IQ score is that the Reggio Approach does not explicitly teach predetermined skills, which may be important for cognitive assessments[5]. A possible explanation for the positive effect of the Reggio Approach on voting behavior is that the Reggio Approach values children's democratic participation in the lives of their communities [7].

6. Discussion

A clear pattern emerges from the results reported in the previous section. The estimates show that the benefits of attending Reggio Approach preschools relative to not attending any preschool are greater than the benefits of attending Reggio Approach preschools relative to attending alternative preschools. This pattern is true for both the age-30 and age-40 cohorts. However, the disparity is more pronounced for the older of the two cohorts. The pronounced difference in results for the age-40 cohort suggests that, at least for this cohort, the Reggio Approach was of sufficiently different quality that it improved outcomes of its students relative to those who did not attend preschool. However, the quality difference between the Reggio Approach and alternative programs was not sufficiently large to result in substantial positive differences in outcomes across these groups.

As previously noted, one possible explanation for this pattern is that over time the different preschools programs within Reggio Emilia and across northern Italy improved their program quality and adopted administrative and pedagogical features that are the key features of the Reggio Approach. For instance, as noted in Section 2, religious preschools made significant efforts to improve their program quality in the 1990s by enhancing teacher training. Similarly, state preschools also improved their quality by decreasing teacher-child ratios in the 1990s. To the extent that these features improve later life outcomes, we should expect the commonalities of features to narrow the gap in outcomes between the Reggio Approach and alternative programs. This narrative is consistent with these results.

The evidence of beneficial effects for the older cohorts suggests that the story of diffusion better explains the broad pattern of evidence than the common founder story. Note, however, that diffusion appears to be rapid. An alternative explanation is that the different programs evolved from a common stimulus independent of the Reggio Approach because of common social and intellectual influences in northern Italy. The three cities were in close geographical proximity to each other thereby, making it easier for ideas to be transmitted between the cities, and to influence by a common source of ideas and social action. Malaguzzi actively promoted his ideas in the 1960s and 1970s [5]. In part, because of his activities, the Reggio Approach has received substantial publicity. This made it difficult for neighboring cities to ignore its features. It is also possible that there was reverse-diffusion.

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[34]One possible source of downward bias is that disabled people were enrolled in Reggio Approach schools. We lack access to the baseline data to control for this potential source of bias.

Perhaps important features were borrowed and adopted by Reggio Approach programs from non-Reggio Approach schools.

Our evidence suggests that the features of the progressive education model of the Reggio Approach not found in the comparison groups do not substantially contribute to boosting the studied outcomes. However, compared to no preschool, there are substantial beneficial effects of the Reggio Approach (and other approaches) on child welfare.

Our evaluation highlights concerns in the program evaluation literature about the importance of accounting for alternatives in control groups. Most controls receive alternative treatments. This problem is pervasive in the literature.[35] It would have been desirable to find control groups less likely to be influenced by the Reggio Approach. An extensive search was made within Italy but did not prove fruitful in locating more distant locations in Italy with general economic and social characteristics similar to those in Reggio.

In addition, the response rate to the primary survey was low (roughly 56%). The information available to us prevented us from adjusting for non-response. Similarly, outmigration rates in our cities are substantial, especially for the adolescent and adult cohorts. We were unable to find data on the outmigrants or to adjust for their characteristics. Selective migration and selective response likely bias our results, but in unknown ways. These selection indicators are similar across all three cities. Finally, the Reggio Approach emphasizes creativity and prioritization of enrollment for children with disabilities. We did not adequately survey creativity nor determine the variation across programs in enrollment of children with disabilities.

For all of these reasons, any conclusion about the effectiveness of the Reggio Approach must remain—at best—provisional. We clearly find that access to some form of infant-toddler care and preschool at the level found in northern Italy is beneficial.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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[35]See [27] and [28], who discuss the problem under the rubric of substitution bias.

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Figure 1.

(a) Number of Administrative Characteristics in Common with the Reggio Approach

(b) Number of Pedagogical Characteristics in Common with the Reggio Approach

Note: Those graphs show the number of administrative and pedagogical components that each program has in common with the Reggio Approach. We consider 14 administrative components and 16 pedagogical components. Some of the pedagogical components were not present in the Reggio Approach.

Figura 2. Population Statistics

Note: See Appendix C for more information on these data and the sources.

(a) Emigration

(b) Immigration

(c) Net Migration

(d) Net Internal Migration

(e) Net Foreign Migration

Figura 3. Migration Statistics

Note: See Appendix C for more information on these data and the sources.

Table 1

Availability of Preschool Programs by City and School Type

Cohort	Years Eligible to Attend Preschool	Reggio Emilia			Parma			Padova		
		Municipal	Religious	State	Municipal	Migious	State	Municipal	Migious	State
Adults 50s	1957–1965	✓			✓			✓		
Adults 40s	1972–1976	✓	✓		✓			✓		
Adults 30s	1983–1987	✓	✓	✓	✓	✓	✓	✓	✓	
Adolescents	1997–2000	✓	✓	✓	✓	✓	✓	✓	✓	
Children	2009–2012	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note: This table indicates the provision by system of educational preschool systems (defined as programs with 4 or more sites) available in each city during the years each cohort was eligible to attend a 3-6 year old program.

Table 2

Survey Respondents by City and School Type

City	Municipal	State	Religious
Reggio Emilia	✓	✓	
Parma	✓		
Padova	✓	✓	✓

Note: This table indicates the systems represented by survey respondents. These individuals include current and former administrators and educational coordinators. One survey was administered for each system noted. Answers reflect the input of multiple people associated with the system. Responses were provided by religious systems in Reggio Emilia and Parma; we do not report them here as they are incomplete.

Table 3

Policies to Support At-Risk Children and Working Families

		Reggio Emilia		Parma	Padova		
		Municipal	State	Municipal	Municipal	State	Religious
Preschools are open 8 hours daily	1960	✓		✓			
	1970	✓	✓	✓	✓	✓	✓
	1980	✓	✓	✓	✓	✓	✓
	1990	✓	✓	✓	✓	✓	✓
	2000	✓	✓	✓	✓	✓	✓
Program sites offer extended hours for working families	1960	✓		✓	✓		✓
	1970	✓	✓	✓	✓		✓
	1980	✓	✓	✓	✓		✓
	1990	✓	✓	✓	✓		✓
	2000	✓	✓	✓	✓		✓
Priority of enrollment is given to economically disadvantaged families	1960	✓		✓	✓		
	1970	✓	✓	✓	✓		
	1980	✓	✓	✓	✓		
	1990	✓	✓	✓	✓		
	2000	✓	✓	✓	✓		
Priority of enrollment is given to children with disabilities	1960	✓					
	1970	✓			✓	✓	
	1980	✓	✓	✓	✓	✓	
	1990	✓	✓	✓	✓	✓	✓
	2000	✓	✓	✓	✓	✓	✓
Priority of enrollment is given to single-parent families	1960	✓					
	1970	✓			✓		
	1980	✓		✓	✓		
	1990	✓		✓	✓	✓	
	2000	✓		✓	✓	✓	

Table 4

Administrative Practices

		Reggio Emilia		Parma	Padova		
		Municipal	**State**	**Municipal**	**Municipal**	**State**	**Religious**
Parental boards or advisory groups are encouraged as active participants in school culture	1960	✓					
	1970	✓	✓	✓	✓		✓
	1980	✓	✓	✓	✓		✓
	1990	✓	✓	✓	✓		✓
	2000	✓	✓	✓	✓		✓
Full-time, degreed Pedagogistas[a] are hired by the system to oversee professional development for multiple program sites	1960	✓					
	1970	✓					
	1980	✓			✓		✓
	1990	✓		✓	✓	✓	✓
	2000	✓		✓	✓	✓	✓
Professional development is provided by highly trained educational coordinators to each program site every 1-2 weeks[b]	1960	✓					
	1970	✓					
	1980	✓					✓
	1990	✓		✓		✓	✓
	2000	✓		✓		✓	✓
Full-time Atelierista, or expert in creative visual arts, is staffed at each preschool site and collaborates with classroom teachers to design creative learning activities	1960	✓					
	1970	✓					
	1980	✓			✓		
	1990	✓			✓		
	2000	✓			✓		
Kitchen and janitorial staff join educators for professional development	1960	✓					
	1970	✓		✓			
	1980	✓		✓			
	1990	✓		✓			
	2000	✓		✓	✓		

| | Reggio Emilia | | Parma | Padova | | |
	Municipal	State	Municipal	Municipal	State	Religious
Scheduled work hours are set aside weekly for teachers to document children's work						
1960	✓					
1970	✓			✓		
1980	✓		✓	✓		✓
1990	✓		✓	✓		✓
2000	✓		✓	✓		✓
Scheduled hours are set aside weekly for teachers to engage families						
1960	✓					✓
1970	✓		✓			✓
1980	✓	✓	✓			✓
1990	✓	✓	✓	✓		✓
2000	✓	✓	✓	✓		✓
Classrooms are homogeneous in age						
1960	✓					
1970	✓	✓				
1980	✓	✓				
1990	✓	✓				
2000	✓	✓				
2 co-teachers for incoming cohorts of 3 year olds. At least 1 teacher stays with the cohort for the next two years to maintain continuity of care						
1960						
1970	✓	✓				
1980	✓	✓	✓	✓		
1990	✓	✓	✓	✓		
2000	✓	✓	✓			

[a] In non-Reggio Approach systems, this role is referred to as Educative Coordinator. The job responsibilities of Educative Coordinators do vary across cities and ECE systems.

[b] In Padova's religious programs, professional development is provided by a mixture of part-time and full-time Educative Coordinators.

Table 5

Pedagogical Components

Pedagogical Components		Reggio Emilia		Parma	Padova		
		Municipal	State	Municipal	Municipal	State	Religious
Theories of psychology and early childhood education (e.g. Bloom, Bruner, Piaget, Vygotsky) influenced educational approaches	1960	✓					
	1970	✓					
	1980	✓		✓	✓		✓
	1990	✓		✓	✓		✓
	2000	✓		✓	✓		✓
Curriculum emerges through research-based projects with unlimited timelines	1960	✓					
	1970	✓					
	1980	✓			✓		
	1990	✓		✓	✓		
	2000	✓		✓	✓		
Visual arts to help children learn	1960	✓		✓			✓
	1970	✓		✓			✓
	1980	✓		✓			✓
	1990	✓		✓			✓
	2000	✓		✓			✓
Teachers document children's learning	1960	✓					
	1970	✓					
	1980	✓		✓	✓		✓
	1990	✓		✓	✓	✓	✓
	2000	✓		✓	✓		✓

Table 6

Summarizing Population Statistics Across Years

	Reggio Emilia	Parma	Padova
Population	134,459.6	**170,335**	**219,161.2**
	(13,413.67)	(10,104.85)	(13,474.66)
Birth rate	10.38	9.36	11.08
(per 1,000)	(2.33)	(3.02)	(4.55)
Death rate	10.62	10.74	**10.13**
(per 1,000)	(0.63)	(0.74)	(095)
Net migration	8.40	7.38	**2.68**
(per 1,000)	(5.63)	(7.36)	(5.96)

Note: This table summarizes the average of population statistics across available years by city. A bolded mean indicates that it is significantly different from Reggio Emilia at least at the 0.05 level. Standard deviations are reported in parentheses. See Appendix C for more information on these data and the sources.

Table 7

Description of the Full Sample and Response Rates

Cohort	Birth year(s)	Age at interview	Reggio Emilia	Parma	Padova	Total
Children						
Italians	2006	7	311 *50.0%*	291 *62.7%*	278 *50.0%*	880 *53.6%*
Migrants	2006	7	110 *53.1%*	58 *49.2%*	113 *63.1%*	281 *55.8%*
Adolescents	1994	19	300 *57.1%*	254 *58.5%*	282 *55.5%*	836 *57.0%*
Adults 30s	1980-1981	32	280 *58.3%*	251 *58.2%*	251 *57.4%*	782 *57.9%*
Adults 40s	1969-1970	43	285 *59.3%*	254 *56.3%*	252 *53.8%*	791 *56.0%*
Adults 50s	1954-1959	54-60	200 *52.2%*	103 *63.6%*	146 *55.6%*	449 *55.6%*
Total			1,486 *55.1%*	1,211 *58.8%*	1,322 *55.0%*	4,019 *56.0%*

Note: The response rates for each city and cohort are in italics. They are the the ratio of interviews to total valid contacts. Valid contacts are the sum of: completed interviews, sharp refusal, no person present, talked with a relative, left paper questionnaire but never returned, interview began but not completed. The age at interview is an approximation given there is some variation in the interview date and birth year within each cohort. In analysis, we combine the Italian and migrant subsamples of the child cohort and control for migrant status.

Table 8

Tabulation of Infant-Toddler Care Attendance by Cohort, City, and School Type

Reggio Emilia: 1,486

	None	Muni	Reli	Priv	Muni-Affi	Other
Children						
Italians	115	109	28	6	51	0
Migrants	58	24	2	0	20	3
Adolescents	129	112	10	3	36	3
Adults 30s	210	53	2	3	1	7
Adults 40s	241	31	0	0	0	0
Adults 50s	194	0	1	0	0	1

Parma: 1,211

	None	Muni	Reli	Priv	Muni-Affi	Other
Children						
Italians	98	99	7	15	48	21
Migrants	24	23	1	0	9	1
Adolescents	126	74	10	11	25	2
Adults 30s	187	31	8	6	11	4
Adults 40s	222	0	2	0	10	16
Adults 50s	85	0	4	0	0	13

Padova: 1,322

	None	Muni	Reli	Priv	Muni-Affi	Other
Children						
Italians	143	48	26	40	19	1
Migrants	57	44	3	0	0	1
Adolescents	209	52	8	0	6	1
Adults 30s	220	19	5	3	0	0
Adults 40s	225	0	7	0	1	17

Reggio Emilia: 1,486

	None	Muni	Reli	Priv	Muni-Affi	Other
Adults 50s	133	0	6	0	0	0

Note: This table shows the sample size by city, cohort, and school type. We separate migrants and children for clarity in this table even though they are in the same birth cohort (year of birth: 2006). None: did not enroll in formal childcare; Muni.: municipal preschool; Relig.: religious preschool; Priv.: private preschool. Muni-Affi: municipal-affiliated preschool; Other: uncategorized preschool.

Tabulation of Preschool Attendence by Cohort, City, and School Type

	None	Muni	State	Reli	Priv	Muni-Affi	Other
Reggio Emilia: 1,486							
Children							
Italians	2	159	44	92	5	7	1
Migrants	4	47	38	14	1	3	1
Adolescents	7	151	22	98	6	13	0
Adults 30s	57	138	31	40	1	4	8
Adults 40s	80	87	14	52	5	1	43
Adults 50s	147	0	0	29	2	0	20
Parma: 1,211							
Children							
Italians	0	105	42	74	8	52	0
Migrants	4	25	12	3	6	7	0
Adolescents	4	100	52	77	6	0	2
Adults 30s	44	85	56	51	0	4	3
Adults 40s	116	0	0	55	1	4	73
Adults 50s	72	0	0	11	0	10	9
Padova: 1,322							
Children							
Italians	2	58	45	141	12	19	0
Migrants	0	33	46	23	1	0	4
Adolescents	1	84	46	132	6	7	2
Adults 30s	47	27	27	140	1	7	0
Adults 40s	75	0	0	126	0	10	39

		Reggio Emilia: 1,486				
	None	Muni	State	Reli	Priv	Muni-Affi	Other
Adults 50s	57	0	0	72	2	6	3

Note: This table shows the sample size by city, cohort, and school type. We separate migrants and children for clarity in this table even though they are in the same birth cohort (year of birth: 2006). None: no preschool; Muni.: municipal preschool; State: state preschool; Relig.: religious preschool; Priv.: private preschool. Muni-Affi: municipal-affiliated preschool; Other: uncategorized preschool.

Table 10

Percentage of People Living in the Same City Since Birth

Cohort	Reggio Emilia (%)	Parma (%)	Padova (%)	Total (%)
Children	61.3	70.2	65.1	65.2
Adolescents	58.1	63.0	64.4	61.9
Adults 30s	26.5	27.5	32.6	29.0
Adults 40s	27.9	31.6	31.9	30.6
Adults 50s	28.8	27.9	31.4	29.5
Total	32.3%	32.5%	35.2%	33.5%

Note: This table presents the percentage of people living in same city since birth. This shows the reference sample who satified the selection criteria (born in the city of residence and of Italian citizenship) as a percentage of the total number of names given by the population registries.

Table 11

Possible Cases of Treatment

		Preschool (Ages 3-6)	
		0	**1**
ITC (Age 0-3)	0	(0,0)	(0,1)
	1	(1,0)	(1,1)

Note: We only consider municipal infant-toddler-centers (ages 0-3) and preschools (ages 3-6). (0,0): did not attend any municipal school for both ages 0-3 and 3-6; (1,0): attended a municipal school for ages 0-3 but did *not* attend for ages 3-6; (0,1): did *not* attend a municipal school for ages 0-3 but did attend for ages 3-6; (1,1): attended a municipal school for both ages 0-3 and 3-6.

Table 12

Number of Individuals in Each Group

	Reggio					Parma					Padova				
	(0,0)	(1,0)	(0,1)	(1,1)	Total	(0,0)	(1,0)	(0,1)	(1,1)	Total	(0,0)	(1,0)	(0,1)	(1,1)	Total
Child	6	0	66	94	419	5	1	26	52	291	2	0	27	22	278
Adolescent	7	0	45	116	300	4	0	40	39	254	1	0	52	32	282
Age-30	57	0	95	53	280	43	0	58	23	251	47	0	19	10	251
Age-40	80	0	97	28	285	115	0	0	0	254	75	0	0	0	252

Note: We only consider municipal infant-toddler-centers (ages 0-3) and preschools (ages 3-6). (0,0): did not attend any preschool for both ages 0-3 but did *not* attend preschool for ages 3-6; (0,1): did *not* attend a municipal school for ages 0-3 but did attend for ages 3-6; (1,1): attended a municipal school for ages 0-3 and 3-6; (1,0): attended a municipal school for both ages 0-3 and 3-6. Column "Total" shows the total number of people in specified city and cohort.

Table 13

Estimation Results for Main Outcomes, Comparison to No Infant-Toddler Care, Child Cohort

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR.	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
IQ Factor	0.55	0.47	0.35	0.25	0.31	0.34	0.34	−0.21	−0.57	−1.28	0.84
Unadjusted P-Value	(0.00)***	(0.01)**	(0.06)**	(0.12)*	(0.18)	(0.20)	(0.18)	(0.36)	(0.10)**	(0.02)***	(0.01)***
Stepdown P-Value	(0.01)***	(0.05)***	(0.29)	(0.56)	(0.76)	(0.79)	(0.86)	(0.92)	(0.50)	(0.12)	(0.10)
SDQ Composite – Child	0.55	1.04	0.95	1.02	1.24	1.19	1.20	−0.74	0.26	0.92	1.73
Unadjusted P-Value	(0.50)	(0.20)	(0.28)	(0.23)	(0.17)	(0.35)	(0.42)	(0.52)	(0.86)	(0.66)	(0.08)**
Stepdown P-Value	(0.84)	(0.82)	(0.72)	(0.76)	(0.76)	(0.89)	(0.91)	(0.92)	(0.98)	(0.96)	(0.31)
Not Obese	0.29	0.22	0.10	0.14	0.17	0.15	0.10	−0.10	−0.13	−0.42	0.38
Unadjusted P-Value	(0.00)***	(0.02)***	(0.33)	(0.08)**	(0.12)*	(0.27)	(0.44)	(0.39)	(0.44)	(0.10)*	(0.00)***
Stepdown P-Value	(0.00)***	(0.11)	(0.72)	(0.47)	(0.64)	(0.82)	(0.92)	(0.92)	(0.91)	(0.31)	(0.06)**
Not Overweight	−0.06	−0.02	0.02	−0.02	−0.05	0.10	0.09	−0.05	−0.13	−0.15	−0.03
Unadjusted P-Value	(0.30)	(0.69)	(0.80)	(0.73)	(0.38)	(0.29)	(0.44)	(0.54)	(0.09)**	(0.23)	(0.64)
Stepdown P-Value	(0.78)	(0.92)	(0.93)	(0.87)	(0.83)	(0.89)	(0.92)	(0.92)	(0.71)	(0.87)	(0.91)
Health is Good	−0.11	−0.06	−0.08	−0.08	−0.13	−0.01	−0.05	0.15	−0.02	0.02	−0.14
Unadjusted P-Value	(0.20)	(0.45)	(0.48)	(0.40)	(0.18)	(0.96)	(0.75)	(0.26)	(0.92)	(0.94)	(0.21)
Stepdown P-Value	(0.71)	(0.88)	(0.72)	(0.83)	(0.76)	(0.94)	(0.92)	(0.90)	(0.98)	(0.96)	(0.63)
Not Excited to Learn	0.00	−0.01	0.01	−0.02	0.01	−0.07	−0.05	0.03	0.11	0.42	−0.14
Unadjusted P-Value	(0.95)	(0.71)	(0.73)	(0.65)	(0.79)	(0.11)*	(0.30)	(0.16)	(0.09)**	(0.05)**	(0.07)**
Stepdown P-Value	(0.96)	(0.92)	(0.93)	(0.87)	(0.93)	(0.79)	(0.86)	(0.77)	(0.50)	(0.12)	(0.30)
Problems Sitting Still	−0.10	−0.07	−0.12	−0.04	−0.04	−0.19	−0.18	−0.03	−0.27	−0.20	−0.04
Unadjusted P-Value	(0.15)	(0.30)	(0.12)*	(0.48)	(0.61)	(0.08)**	(0.10)*	(0.78)	(0.05)***	(0.21)	(0.59)
Stepdown P-Value	(0.54)	(0.84)	(0.33)	(0.86)	(0.92)	(0.56)	(0.57)	(0.92)	(0.18)	(0.87)	(0.91)
How Much Child Likes School	0.11	0.08	0.01	0.09	−0.02	0.15	−0.08	−0.11	0.20	−0.37	0.44
Unadjusted P-Value	(0.25)	(0.38)	(0.95)	(0.35)	(0.86)	(0.31)	(0.69)	(0.37)	(0.38)	(0.38)	(0.00)***
Stepdown P-Value	(0.73)	(0.88)	(0.96)	(0.83)	(0.93)	(0.89)	(0.92)	(0.92)	(0.85)	(0.88)	(0.06)**
Num. of Friends	0.86	0.79	0.70	0.88	0.87	1.40	1.36	−0.76	0.38	1.31	−0.92
Unadjusted P-Value	(0.01)***	(0.02)***	(0.12)*	(0.02)***	(0.01)***	(0.04)***	(0.09)**	(0.30)	(0.78)	(0.44)	(0.21)
Stepdown P-Value	(0.12)	(0.23)	(0.43)	(0.16)	(0.07)**	(0.35)	(0.63)	(0.91)	(0.97)	(0.91)	(0.63)

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR.	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
Candy Game: Willing to Share Candies	0.01	0.06	0.00	0.09	0.08	0.09	0.15	−0.09	−0.05	0.05	0.01
Unadjusted P-Value	(0.84)	(0.31)	(0.96)	(0.29)	(0.30)	(0.27)	(0.19)	(0.15)	(0.62)	(0.78)	(0.91)
Stepdown P-Value	(0.96)	(0.88)	(0.98)	(0.78)	(0.79)	(0.89)	(0.84)	(0.77)	(0.97)	(0.96)	(0.93)

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach infant-toddler centers from multiple methods. We compare individuals who attended both municipal infant-toddler centers and preschools (1,1) with individuals who only attended municipal preschools and no infant-toddler center (0,1). The Column titles indicate the corresponding control set and and model. **None** = within-Reggio Emilia OLS estimate with no control variables. **BIC** = within-Reggio Emilia OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls for male indicator and ITC attendance indicator. **Full** = within-Reggio Emilia OLS estimate with the full set of controls. **PSM** = within-Reggio Emilia propensity score matching estimation. **KM** = within-Reggio Emilia Epanechnikov kernel matching estimation. **DidPm** = difference-in-differences estimates of (Reggio (1,1) – Reggio (0,1)) – (Parma (1,1) – Parma (0,1)). **KMDidPm** = difference-in-differences kernel matching estimates of (Reggio (1,1) – Reggio (0,1)) – (Parma (1,1) – Parma (0,1)). **KMPm** = Epanechnikov kernel matching estimation between Reggio (1,1) and Parma (0,1). **DidPv** = difference-in-differences estimates of (Reggio (1,1) – Reggio (0,1)) – (Padova (1,1) – Padova (0,1)). **KMDidPv** = difference-in-differences kernel matching estimates of (Reggio (1,1) – Reggio (0,1)) – (Padova (0,1) – Padova (0,1)).

Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively. Empty cells show that the estimation cannot be carried out for that outcome.

Table 14

Estimation Results for Main Outcomes, Comparison to No Infant-Toddler Care, Adolescent Cohort

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
IQ Factor	0.20	0.22	0.12	0.27	0.27	0.27	0.20	−0.07	−0.07	−0.25	0.43
Unadjusted P-Value	(0.30)	(0.22)	(0.52)	(0.13)*	(0.21)	(0.30)	(0.49)	(0.71)	(0.81)	(0.45)	(0.03)***
Stepdown P-Value	(0.98)	(0.90)	(0.94)	(0.80)	(0.91)	(0.98)	(0.98)	(0.98)	(0.99)	(0.99)	(0.37)
SDQ Composite – Child	1.35	0.89	1.71	0.82	1.04	0.52	0.45	0.43	0.41	0.27	0.27
Unadjusted P-Value	(0.11)*	(0.32)	(0.07)**	(0.44)	(0.26)	(0.72)	(0.78)	(0.68)	(0.74)	(0.85)	(0.70)
Stepdown P-Value	(0.72)	(0.91)	(0.32)	(0.96)	(0.94)	(0.99)	(0.98)	(0.98)	(0.99)	(0.99)	(0.99)
SDQ Composite	−0.69	−1.15	−0.66	0.09	−0.71	−1.20	−0.45	−1.11	−1.42	−0.42	−0.13
Unadjusted P-Value	(0.48)	(0.24)	(0.53)	(0.93)	(0.51)	(0.42)	(0.82)	(0.26)	(0.34)	(0.81)	(0.90)
Stepdown P-Value	(0.99)	(0.91)	(0.94)	(0.99)	(0.94)	(0.99)	(0.98)	(0.91)	(0.98)	(0.99)	(0.99)
Depression Score – positive	−0.90	−1.46	−1.67	−1.52	−1.62	−1.52	−1.94	−0.03	−1.59	−0.80	−0.83
Unadjusted P-Value	(0.46)	(0.23)	(0.17)	(0.18)	(0.23)	(0.37)	(0.41)	(0.98)	(0.40)	(0.72)	(0.46)
Stepdown P-Value	(0.99)	(0.91)	(0.82)	(0.89)	(0.93)	(0.99)	(0.98)	(0.98)	(0.99)	(0.99)	(0.99)
Locus of Control – positive	−0.13	−0.17	−0.16	−0.19	−0.23	0.02	−0.17	−0.01	−0.59	−0.84	0.20
Unadjusted P-Value	(0.33)	(0.21)	(0.22)	(0.24)	(0.12)*	(0.91)	(0.51)	(0.97)	(0.00)***	(0.00)***	(0.14)*
Stepdown P-Value	(0.99)	(0.90)	(0.86)	(0.89)	(0.82)	(0.99)	(0.98)	(0.98)	(0.08)**	(0.04)***	(0.79)
Not Obese	0.05	0.10	0.08	0.11	0.09	−0.03	0.01	0.01	0.02	−0.10	0.14
Unadjusted P-Value	(0.55)	(0.16)	(0.27)	(0.20)	(0.29)	(0.80)	(0.98)	(0.95)	(0.87)	(0.52)	(0.08)**
Stepdown P-Value	(0.99)	(0.86)	(0.86)	(0.89)	(0.94)	(0.99)	(0.99)	(0.98)	(0.99)	(0.99)	(0.61)
Not Overweight	0.07	0.07	0.07	0.06	0.05	0.04	0.02	0.14	0.06	0.04	0.01
Unadjusted P-Value	(0.14)*	(0.11)*	(0.14)*	(0.10)*	(0.34)	(0.63)	(0.91)	(0.02)***	(0.22)	(0.43)	(0.72)
Stepdown P-Value	(0.43)	(0.44)	(0.25)	(0.76)	(0.94)	(0.99)	(0.99)	(0.29)	(0.88)	(0.93)	(0.99)
Health is Good	0.03	−0.01	−0.00	−0.03	−0.03	0.02	−0.05	0.15	0.14	0.20	−0.02
Unadjusted P-Value	(0.72)	(0.94)	(0.97)	(0.71)	(0.74)	(0.88)	(0.66)	(0.14)*	(0.34)	(0.19)	(0.86)
Stepdown P-Value	(0.99)	(0.97)	(0.97)	(0.99)	(0.94)	(0.99)	(0.98)	(0.82)	(0.98)	(0.88)	(0.99)
Go To School	0.03	0.02	−0.01	0.01	0.02	0.07	0.07	−0.02	0.03	0.04	−0.02
Unadjusted P-Value	(0.44)	(0.63)	(0.73)	(0.84)	(0.61)	(0.15)*	(0.19)	(0.16)	(0.62)	(0.34)	(0.55)
Stepdown P-Value	(0.99)	(0.97)	(0.94)	(0.99)	(0.94)	(0.85)	(0.96)	(0.83)	(0.99)	(0.93)	(0.99)

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
How Much Child Likes School	−0.06	−0.10	−0.13	0.01	−0.17	−0.37	−0.49	0.15	−0.30	−0.36	0.01
Unadjusted P-Value	(0.75)	(0.62)	(0.56)	(0.95)	(0.41)	(0.16)	(0.13)*	(0.41)	(0.29)	(0.35)	(0.94)
Stepdown P-Value	(0.99)	(0.97)	(0.94)	(0.99)	(0.94)	(0.92)	(0.78)	(0.97)	(0.98)	(0.93)	(0.99)
Days of Sport (Weekly)	0.29	0.26	0.45	0.18	0.21	0.19	0.05	−0.26	−1.00	−1.49	0.36
Unadjusted P-Value	(0.46)	(0.50)	(0.27)	(0.62)	(0.65)	(0.72)	(0.97)	(0.43)	(0.09)**	(0.03)***	(0.30)
Stepdown P-Value	(0.99)	(0.97)	(0.86)	(0.99)	(0.94)	(0.99)	(0.99)	(0.98)	(0.71)	(0.35)	(0.96)
Num. of Friends	4.70	4.77	4.43	4.57	4.37	8.07	6.59	0.46	0.82	0.11	1.27
Unadjusted P-Value	(0.00)***	(0.00)***	(0.01)***	(0.00)***	(0.01)***	(0.01)***	(0.03)***	(0.87)	(0.84)	(0.98)	(0.60)
Stepdown P-Value	(0.03)***	(0.05)***	(0.14)	(0.04)***	(0.09)**	(0.09)**	(0.58)	(0.98)	(0.99)	(0.99)	(0.99)
Volunteers	0.09	0.07	0.06	0.10	0.11	0.10	0.04	0.12	−0.09	−0.08	0.18
Unadjusted P-Value	(0.35)	(0.39)	(0.53)	(0.26)	(0.26)	(0.47)	(0.82)	(0.23)	(0.51)	(0.51)	(0.04)***
Stepdown P-Value	(0.99)	(0.97)	(0.94)	(0.89)	(0.94)	(0.99)	(0.98)	(0.90)	(0.99)	(0.99)	(0.45)
Trust Score	0.00	0.08	0.09	0.42	0.31	0.42	0.58	−0.59	−0.48	−0.60	0.22
Unadjusted P-Value	(0.99)	(0.77)	(0.78)	(0.18)	(0.30)	(0.32)	(0.33)	(0.06)**	(0.29)	(0.33)	(0.41)
Stepdown P-Value	(0.99)	(0.97)	(0.94)	(0.89)	(0.94)	(0.98)	(0.98)	(0.55)	(0.97)	(0.93)	(0.98)

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach infant-toddler centers and preschools from multiple methods. We compare people who attended both municipal infant-toddler centers and preschools (1,1) with people who only attended municipal preschools and no infant-toddler center (0,1). As in Section Column title indicates the corresponding control set and model. **None** = within-Reggio Emilia OLS estimate with no control variables. **BIC** = within-Reggio Emilia OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls for male indicator and ITC attendance indicator. **Full** = within-Reggio Emilia OLS estimate with the full set of controls. **PSM** = within-Reggio Emilia propensity score matching estimation. **KM** = within-Reggio Emilia Epanechnikov kernel matching estimation. **DidPm** = difference-in-differences estimates of (Reggio (1,1) − Reggio (0,1)) − (Parma (1,1) − Parma (0,1)). **KMDidPm** = difference-in-differences kernel matching estimates of (Reggio (1,1) − Reggio (0,1)) − (Parma (1,1) − Parma (0,1)). **KMPm** = Epanechnikov kernel matching estimation between Reggio (1,1) and Parma (0,1). **DidPv** = difference-in-differences estimates of (Reggio (1,1) − Reggio (0,1)) − (Padova (1,1) − Padova (0,1)). **KMDidPv** = difference-in-differences kernel matching estimates of (Reggio (1,1) − Reggio (0,1)) − (Padova (1,1) − Padova (0,1)). *** , ** , and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively. Empty cells show that the estimation cannot be carried out for that outcome.

Note 2: Both unadjusted p-value and stepdown p-value are reported.

Table 15

Estimation Results for Main Outcomes, Comparison to No Infant-Toddler Care, Age-30 Cohort

	Within Reggio					With Parma	
	None	BIC	Full	PSM	KM	DidPm	KMPm
IQ Factor	−0.20	−0.25	−0.29	−0.16	−0.28	0.24	−0.85
Unadjusted P-Value	(0.13)*	(0.07)**	(0.04)***	(0.24)	(0.04)***	(0.29)	(0.00)***
Stepdown P-Value	(0.63)	(0.56)	(0.24)	(0.71)	(0.31)	(0.96)	(0.00)***
Graduate from High School	0.01	−0.03	−0.06	−0.04	−0.01	−0.16	0.01
Unadjusted P-Value	(0.92)	(0.55)	(0.29)	(0.45)	(0.84)	(0.10)*	(0.95)
Stepdown P-Value	(0.96)	(0.90)	(0.73)	(0.84)	(0.98)	(0.80)	(0.99)
High School Grade	−3.06	−3.48	−3.18	−3.03	−3.94	6.34	3.08
Unadjusted P-Value	(0.05)**	(0.04)***	(0.07)**	(0.06)**	(0.02)***	(0.31)	(0.43)
Stepdown P-Value	(0.45)	(0.37)	(0.22)	(0.40)	(0.22)	(0.84)	(0.97)
High School Grade (Standardized)	−2.88	−3.67	−3.00	−3.38	−3.99	3.41	−2.26
Unadjusted P-Value	(0.15)	(0.07)**	(0.15)*	(0.09)**	(0.06)**	(0.44)	(0.46)
Stepdown P-Value	(0.58)	(0.52)	(0.43)	(0.54)	(0.35)	(0.96)	(0.97)
Max Edu: Lmversitv	−0.14	−0.16	−0.19	−0.15	−0.17	−0.25	−0.22
Unadjusted P-Value	(0.01)***	(0.00)***	(0.00)***	(0.02)***	(0.00)***	(0.05)***	(0.08)**
Stepdown P-Value	(0.24)	(0.14)	(0.08)**	(0.22)	(0.02)***	(0.53)	(0.55)
Employed	0.06	0.06	0.07	0.06	0.06	−0.04	0.09
Unadjusted P-Value	(0.01)***	(0.01)***	(0.02)***	(0.01)***	(0.03)***	(0.64)	(0.35)
Stepdown P-Value	(0.50)	(0.56)	(0.27)	(0.22)	(0.27)	(0.99)	(0.96)
Hours Worked Per Week	4.75	5.54	5.70	5.41	5.52	1.79	9.26
Unadjusted P-Value	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.67)	(0.04)***
Stepdown P-Value	(0.21)	(0.08)**	(0.07)**	(0.02)***	(0.02)***	(0.99)	(0.38)
Married or Cohabitating	0.14	0.13	0.14	0.11	0.13	0.05	0.20
Unadjusted P-Value	(0.10)*	(0.13)*	(0.12)*	(0.22)	(0.13)*	(0.74)	(0.15)
Stepdown P-Value	(0.52)	(0.56)	(0.36)	(0.71)	(0.56)	(0.99)	(0.70)
Not Obese	0.15	0.12	0.09	0.14	0.09	0.19	0.01
Unadjusted P-Value	(0.01)***	(0.05)***	(0.12)*	(0.03)***	(0.17)	(0.18)	(0.94)
Stepdown P-Value	(0.28)	(0.49)	(0.49)	(0.27)	(0.56)	(0.82)	(0.99)

	Within Reggio					With Parma	
	None	BIC	Full	PSM	KM	DidPm	KMPm
Not Overweight	0.07	0.04	0.02	0.04	0.04	-0.03	0.23
Unadjusted P- Value	(0.31)	(0.58)	(0.75)	(0.50)	(0.62)	(0.83)	(0.08)**
Stepdown P- Value	(0.73)	(0.90)	(0.95)	(0.84)	(0.94)	(0.99)	(0.55)
Locus of Control – positive	-0.03	-0.02	0.01	0.02	-0.02	0.12	-0.02
Unadjusted P- Value	(0.77)	(0.88)	(0.90)	(0.84)	(0.84)	(0.66)	(0.93)
Stepdown P- Value	(0.96)	(0.90)	(0.98)	(0.84)	(0.98)	(0.99)	(0.99)
Depression Score – positive	-1.26	-1.31	-1.70	-1.28	-1.44	-5.21	-0.59
Unadjusted P- Value	(0.16)	(0.14)*	(0.06)**	(0.16)	(0.13)*	(0.00)***	(0.73)
Stepdown P- Value	(0.63)	(0.56)	(0.18)	(0.67)	(0.56)	(0.03)***	(0.99)
Volunteers	-0.09	-0.08	-0.06	-0.10	-0.08	0.12	-0.42
Unadjusted P- Value	(0.02)***	(0.03)***	(0.13)*	(0.00)***	(0.04)***	(0.29)	(0.00)***
Stepdown P- Value	(0.50)	(0.56)	(0.58)	(0.06)**	(0.31)	(0.94)	(0.02)***
Ever Voted tor Municipal	0.23	0.18	0.11	0.22	0.16	0.13	0.48
Unadjusted P- Value	(0.01)***	(0.02)***	(0.17)	(0.01)***	(0.06)**	(0.26)	(0.00)***
Stepdown P- Value	(0.11)	(0.17)	(0.40)	(0.10)**	(0.35)	(0.94)	(0.00)***
Ever Voted for Regional	0.23	0.20	0.15	0.23	0.19	0.17	0.55
Unadjusted P- Value	(0.01)***	(0.01)***	(0.06)**	(0.01)***	(0.03)***	(0.12)*	(0.00)***
Stepdown P- Value	(0.11)	(0.14)	(0.16)	(0.09)**	(0.27)	(0.84)	(0.00)***
Num. of Friends	-3.62	-3.70	-4.22	-4.15	-3.63	-7.73	-2.36
Unadjusted P- Value	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.08)**	(0.13)*
Stepdown P- Value	(0.08)**	(0.07)**	(0.04)***	(0.00)***	(0.01)***	(0.13)	(0.70)
Trust Score	-1.15	-1.16	-1.14	-1.24	-1.14	-1.64	-1.10
Unadjusted P- Value	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.03)***
Stepdown P- Value	(0.00)***	(0.00)***	(0.04)***	(0.00)***	(0.00)***	(0.01)***	(0.29)

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach infant-toddler centers and preschools (1,1) with people who only attended municipal preschools and no infant-toddler center (0,1). As in Section Column title indicates the corresponding control set and and model. **None** = within-Reggio Emilia OLS estimate with no control variables. **BIC** = within-Reggio Emilia OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls for male indicator and ITC attendance indicator. **Full** = within-Reggio Emilia OLS estimate with the full set of controls. **PSM** = within-Reggio Emilia propensity score matching estimation. **KM** = within-Reggio Emilia Epanechnikov kernel matching estimation. **DidPm** = difference-in-differences estimates of (Reggio (1,1) – Reggio (0,1)) – (Parma (1,1) – Parma (0,1)). **PSMPm** = propensity score matching estimation between Reggio (1,1) and Parma (0,1). **KMPm** = Epanechnikov kernel matching estimation between Reggio (1,1) and Parma (0,1). *Note that comparison with Padova is not possible due to small sample size as specified in* Table 12.

Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively. Empty cells show that the estimation cannot be carried out for that outcome.

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Table 16

Estimation Results for Main Outcomes, Comparison to No Infant-Toddler Care, Age-40 Cohort

	None	BIC	Full	PSM	KM
IQ Factor	−0.45	−0.52	−0.50	−0.57	−0.56
Unadjusted P- Value	(0.00)***	(0.00)***	(0.00)***	(0.34)	(0.00)***
Stepdown P- Value	(0.10)	(0.09)**	(0.15)	(0.63)	(0.04)***
Graduate from High School	−0.29	−0.20	−0.14	−0.09	−0.20
Unadjusted P- Value	(0.01)***	(0.07)**	(0.24)	(0.25)	(0.07)**
Stepdown P- Value	(0.02)***	(0.39)	(0.44)	(0.59)	(0.60)
High School Grade	1.41	1.70	3.97	1.77	2.54
Unadjusted P- Value	(0.39)	(0.31)	(0.05)**	(0.51)	(0.18)
Stepdown P- Value	(0.96)	(0.98)	(0.39)	(0.76)	(0.84)
High School Grade (Standardized)	0.53	0.35	2.34	1.23	1.32
Unadjusted P- Value	(0.77)	(0.84)	(0.31)	(0.02)***	(0.54)
Stepdown P- Value	(0.98)	(0.99)	(0.79)	(0.10)**	(0.98)
Max Edn: University	−0.11	−0.04	−0.03	0.06	−0.02
Unadjusted P- Value	(0.08)**	(0.51)	(0.58)	(0.78)	(0.84)
Stepdown P- Value	(0.78)	(0.98)	(0.93)	(0.92)	(0.98)
Employed	0.03	0.05	0.09	0.05	0.05
Unadjusted P- Value	(0.08)**	(0.10)*	(0.09)**	(0.06)**	(0.06)**
Stepdown P- Value	(0.96)	(0.93)	(0.22)	(0.25)	(0.51)
Honrs Worked Per Week	4.85	6.31	7.82	4.70	6.90
Unadjusted P- Value	(0.02)***	(0.01)***	(0.01)***	(0.01)***	(0.00)***
Stepdown P- Value	(0.43)	(0.22)	(0.12)	(0.08)**	(0.10)**
Married or Cohabitating	−0.06	−0.10	−0.10	−0.00	−0.12
Unadjusted P- Value	(0.53)	(0.35)	(0.38)	(0.97)	(0.26)
Stepdown P- Value	(0.96)	(0.98)	(0.67)	(0.98)	(0.92)
Not Obese	0.23	0.13	0.08	0.05	0.12
Unadjusted P- Value	(0.00)***	(0.10)*	(0.32)	(0.83)	(0.15)
Stepdown P- Value	(0.20)	(0.93)	(0.71)	(0.92)	(0.84)
Not Overweight	0.08	0.13	0.17	0.19	0.14

	None	BIC	Full	PSM	KM
Unadjusted P- Value	(0.36)	(0.18)	(0.11)*	(0.00)***	(0.16)
Stepdown P- Value	(0.96)	(0.93)	(0.33)	(0.02)***	(0.84)
Locus of Control – positive	0.16	0.18	0.16	0.41	0.17
Unadjusted P- Value	(0.32)	(0.29)	(0.41)	(0.00)***	(0.36)
Stepdown P- Value	(0.96)	(0.98)	(0.73)	(0.02)***	(0.94)
Depression Score – positive	1.05	−0.16	−0.69	1.24	−0.13
Unadjusted P- Value	(0.37)	(0.90)	(0.61)	(0.13)*	(0.92)
Stepdown P- Value	(0.96)	(0.99)	(0.87)	(0.43)	(0.98)
Volunteers	−0.11	−0.05	−0.05	−0.10	−0.05
Unadjusted P- Value	(0.00)***	(0.09)**	(0.19)	(0.00)***	(0.33)
Stepdown P- Value	(0.50)	(0.98)	(0.74)	(0.02)***	(0.94)
Ever Voted for Municipal	0.32	0.07	0.11	0.07	0.05
Unadjusted P- Value	(0.00)***	(0.36)	(0.14)*	(0.76)	(0.61)
Stepdown P- Value	(0.02)***	(0.98)	(0.50)	(0.92)	(0.98)
Ever Voted for Regional	0.32	0.07	0.09	0.06	0.08
Unadjusted P- Value	(0.00)***	(0.27)	(0.20)	(0.79)	(0.37)
Stepdown P- Value	(0.02)***	(0.98)	(0.58)	(0.92)	(0.94)
Num. of Friends	−4.79	−3.35	−2.60		−3.01
Unadjusted P- Value	(0.00)***	(0.00)***	(0.00)***		(0.02)***
Stepdown P- Value	(0.01)***	(0.29)	(0.30)		(0.27)
Trust Score	−0.04	0.08	0.09	−0.52	0.04
Unadjusted P- Value	(0.88)	(0.79)	(0.78)	(0.01)***	(0.91)
Stepdown P- Value	(0.98)	(0.99)	(0.96)	(0.04)***	(0.98)

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach infant-toddler centers and preschools with people who only attended Reggio Approach preschools. Column title indicates the corresponding control set and and model. **None** = OLS estimate with no control variables. **BIC** = OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls for male indicator and ITC attendance indicator. **Full** = OLS estimate with the full set of controls. **PSM** = propensity score matching estimation. **KM** = Epanechnikov kernel matching estimation.

Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively. Empty cells show that the estimation cannot be carried out for that outcome.

Table 17

Estimation Results for Main Outcomes, Comparison to Non-RA Preschools, Child Cohort

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
IQ Factor	−0.13	−0.20	−0.19	−0.21	−0.15	−0.03	−0.08	−0.39	−0.14	−0.07	−0.25
Unadjusted P-Value	(0.22)	(0.06)**	(0.00)**	(0.05)**	(0.20)	(0.83)	(0.62)	(0.00)***	(0.43)	(0.66)	(0.03)***
Stepdown P-Value	(0.85)	(0.42)	(0.33)	(0.37)	(0.81)	(0.99)	(0.99)	(0.00)***	(0.94)	(0.98)	(0.19)
SDQ Composite – Child	1.59	1.47	2.14	1.39	1.13	0.62	0.79	0.24	1.91	1.52	0.71
Unadjusted P-Value	(0.00)***	(0.01)***	(0.00)***	(0.01)***	(0.06)**	(0.43)	(0.37)	(0.60)	(0.03)***	(0.13)*	(0.16)
Stepdown P-Value	(0.04)***	(0.07)**	(0.00)***	(0.15)	(0.45)	(0.99)	(0.94)	(0.96)	(0.22)	(0.74)	(0.58)
Not Obese	−0.04	−0.07	−0.08	−0.08	−0.06	−0.01	−0.02	−0.16	0.02	0.05	−0.06
Unadjusted P-Value	(0.47)	(0.16)	(0.14)*	(0.16)	(0.28)	(0.84)	(0.76)	(0.00)***	(0.83)	(0.50)	(0.23)
Stepdown P-Value	(0.98)	(0.63)	(0.59)	(0.71)	(0.84)	(0.99)	(0.99)	(0.01)***	(0.96)	(0.98)	(0.65)
Not Overweight	−0.02	−0.01	−0.02	0.00	−0.01	−0.02	−0.02	0.02	−0.04	−0.02	−0.04
Unadjusted P-Value	(0.54)	(0.87)	(0.64)	(0.99)	(0.79)	(0.76)	(0.79)	(0.53)	(0.44)	(0.65)	(0.24)
Stepdown P-Value	(0.98)	(0.63)	(0.92)	(0.99)	(0.99)	(0.99)	(0.99)	(0.96)	(0.94)	(0.98)	(0.65)
Health is Good	−0.02	−0.00	0.01	−0.02	−0.03	0.07	0.07	0.04	−0.01	−0.06	−0.09
Unadjusted P-Value	(0.78)	(0.99)	(0.87)	(0.70)	(0.64)	(0.43)	(0.95)	(0.39)	(0.93)	(0.51)	(0.06)**
Stepdown P-Value	(0.98)	(0.99)	(0.92)	(0.99)	(0.99)	(0.99)	(0.94)	(0.96)	(0.96)	(0.98)	(0.35)
Not Excited to Learn	−0.01	−0.00	−0.01	0.00	−0.00	−0.00	−0.01	−0.02	−0.04	−0.03	−0.02
Unadjusted P-Value	(0.60)	(0.84)	(0.69)	(0.92)	(0.99)	(0.95)	(0.75)	(0.28)	(0.31)	(0.45)	(0.41)
Stepdown P-Value	(0.98)	(0.63)	(0.92)	(0.99)	(0.99)	(0.99)	(0.99)	(0.92)	(0.83)	(0.98)	(0.65)
Problems Sitting Still	−0.00	0.01	−0.03	0.02	0.02	−0.08	−0.06	−0.01	−0.08	−0.03	−0.00
Unadjusted P-Value	(0.90)	(0.78)	(0.51)	(0.71)	(0.63)	(0.16)	(0-35)	(0.85)	(0.20)	(0.64)	(0.90)
Stepdown P-Value	(0.98)	(0.63)	(0.92)	(0.99)	(0.99)	(0.77)	(0.94)	(0.96)	(0.76)	(0.98)	(0.92)
How Much Child Likes School	0.14	0.11	0.15	0.10	0.11	0.24	0.17	−0.04	0.29	0.25	0.33
Unadjusted P-Value	(0.05)***	(0.11)*	(0.04)***	(0.19)	(0.15)*	(0.01)***	(0.09)**	(0.45)	(0.01)***	(0.05)**	(0.00)***
Stepdown P-Value	(0.29)	(0.59)	(0.25)	(0.71)	(0.76)	(0.11)	(0-53)	(0.96)	(0.08)**	(0.37)	(0.00)***
Num. of Friends	−0.30	−0.42	−0.35	−0.36	−0.38	−0.19	−0.51	−0.34	−0.22	−0.43	−1.57
Unadjusted P-Value	(0.23)	(0.09)**	(0.18)	(0.15)	(0.15)*	(0.74)	(0.29)	(0.27)	(0.79)	(0.62)	(0.00)***
Stepdown P-Value	(0.85)	(0.52)	(0.64)	(0.71)	(0.76)	(0.99)	(0.93)	(0.92)	(0.96)	(0.98)	(0.00)***

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
Candy Game: Willing to Share Candies	0.01	0.00	0.03	−0.03	0.01	0.01	0.00	−0.01	0.02	0.04	−0.04
Unadjusted P-Value	(0.70)	(0.90)	(0.39)	(0.44)	(0.89)	(0.77)	(0.93)	(0.63)	(0.65)	(0.61)	(0.14)*
Stepdown P-Value	(0.98)	(0.99)	(0.89)	(0.96)	(0.99)	(0.99)	(0.99)	(0.96)	(0.95)	(0.98)	(0.58)

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach preschools from multiple methods. We compare Reggio Approach individuals with those who attended other preschools. Column title indicates the corresponding control set and and model. **None** = OLS estimate with no control variables. **BIC** = OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls formale indicator, migrant indicator, and ITC attendance indicator. **Full** = OLS estimate with the full set of controls. **PSMR** = propensity score matching between Reggio Approach people and people in Reggio who attended other types of preschool. **KMR** = Epanechinikov kernel matching between Reggio Approach people and people in Reggio who attended other types of preschool. **DidPm** = difference-in-differences estimate of (Reggio Muni – Parma Muni) – (Reggio Other – Parma Other). **KMPm** = Epanechinikov kernel matching between Reggio Approach people and people who attended Parma preschools. **KMDidPm** = difference-in-differences kernel matching estimate of (Reggio Muni – Parma Muni) – (Reggio Other – Parma Other). **DidPv** = difference-in-differences estimate of (Reggio Muni – Padova Muni) – (Reggio Other – Padova Other). **KMDidPv** = difference-in-differences kernel matching estimate of (Reggio Muni – Padova Muni) – (Reggio Other – Padova Other). **KMPv** = Epanechinikov kernel matching between Reggio Approach people and people who attended Padova preschools.

Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively.

Table 18

Estimation Results for Main Outcomes, Comparison to Non-RA Preschools, Adolescent Cohort

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR.	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
IQ Factor	−0.12	−0.15	−0.03	−0.06	−0.14	−0.16	−0.14	−0.07	−0.26	−0.28	0.32
Unadjusted P-Value	(0.22)	(0.15)*	(0.78)	(0.53)	(0.25)	(0.23)	(0.29)	(0.45)	(0.17)	(0.10)*	(0.02)***
Stepdown P-Value	(0.88)	(0.84)	(0.98)	(0.99)	(0.96)	(0.79)	(0.92)	(0.97)	(0.80)	(0.79)	(0.27)
SDQ Composite – Child	0.01	0.18	0.37	−0.56	0.08	−0.22	−0.84	0.44	−0.85	−0.66	−0.41
Unadjusted P-Value	(0.98)	(0.80)	(0.55)	(0.49)	(0.92)	(0.81)	(0.36)	(0.42)	(0.31)	(0.49)	(0.47)
Stepdown P-Value	(0.99)	(0.99)	(0.97)	(0.99)	(0.99)	(0.98)	(0.95)	(0.97)	(0.93)	(0.99)	(0.96)
SDQ Composite	0.90	1.03	0.72	1.02	1.20	1.43	1.24	−0.48	0.71	0.52	0.73
Unadjusted P-Value	(0.15)	(0.14)*	(0.32)	(0.22)	(0.13)*	(0.12)*	(0.16)	(0.42)	(0.46)	(0.59)	(0.28)
Stepdown P-Value	(0.82)	(0.82)	(0.90)	(0.94)	(0.86)	(0.69)	(0.90)	(0.97)	(0.96)	(0.99)	(0.93)
Depression Score – positive	1.46	2.39	1.81	2.24	2.70	2.50	3.46	−0.38	2.00	2.34	0.17
Unadjusted P-Value	(0.06)**	(0.01)***	(0.05)***	(0.03)***	(0.01)***	(0.02)***	(0.00)***	(0.56)	(0.10)**	(0.07)**	(0.83)
Stepdown P-Value	(0.58)	(0.09)**	(0.31)	(0.36)	(0.14)	(0.19)	(0.10)**	(0.97)	(0.61)	(0.68)	(0.99)
Locus of Control – positive	0.03	0.10	0.04	0.07	0.07	−0.27	−0.22	0.24	0.05	0.04	0.04
Unadjusted P-Value	(0.68)	(0.27)	(0.63)	(0.52)	(0.55)	(0.06)**	(0.18)	(0.01)***	(0.70)	(0.69)	(0.68)
Stepdown P-Value	(0.98)	(0.94)	(0.97)	(0.99)	(0.99)	(0.52)	(0.88)	(0.06)**	(0.96)	(0.99)	(0.99)
Not Obese	−0.08	−0.11	−0.09	−0.07	−0.07	0.03	0.05	−0.07	−0.09	−0.07	0.07
Unadjusted P-Value	(0.04)***	(0.03)***	(0.03)***	(0.10)**	(0.15)*	(0.65)	(0.41)	(0.07)**	(0.23)	(0.38)	(0.22)
Stepdown P-Value	(0.53)	(0.26)	(0.33)	(0.73)	(0.86)	(0.98)	(0.95)	(0.43)	(0.89)	(0.99)	(0.89)
Not Overweight	0.01	−0.02	−0.00	−0.03	0.01	0.09	0.09	0.03	−0.03	−0.00	−0.03
Unadjusted P-Value	(0.75)	(0.58)	(0.98)	(0.42)	(0.84)	(0.03)***	(0.04)***	(0.17)	(0.31)	(0.92)	(0.19)
Stepdown P-Value	(0.99)	(0.99)	(0.98)	(0.98)	(0.99)	(0.14)	(0.54)	(0.71)	(0.93)	(0.99)	(0.87)
Health is Good	0.06	0.07	0.09	0.05	0.02	0.11	0.08	0.17	0.16	0.06	0.04
Unadjusted P-Value	(0.32)	(0.28)	(0.15)	(0.50)	(0.82)	(0.22)	(0.35)	(0.00)***	(0.07)**	(0.62)	(0.50)
Stepdown P-Value	(0.94)	(0.94)	(0.80)	(0.99)	(0.99)	(0.79)	(0.95)	(0.04)***	(0.52)	(0.99)	(0.96)
Go To School	0.03	0.01	0.03	−0.01	−0.00	0.03	0.01	0.03	0.04	0.01	−0.00
Unadjusted P-Value	(0.22)	(0.78)	(0.22)	(0.76)	(0.96)	(0.35)	(0.87)	(0.14)*	(0.20)	(0.57)	(0.90)
Stepdown P-Value	(0.88)	(0.99)	(0.84)	(0.99)	(0.99)	(0.84)	(0.95)	(0.68)	(0.75)	(0.99)	(0.99)

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR.	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
How Much Child Likes School	-0.11	-0.05	-0.17	-0.04	-0.08	-0.04	-0.14	0.01	-0.10	-0.09	-0.11
Unadjusted P-Value	(0.33)	(0.67)	(0.17)	(0.74)	(0.55)	(0.82)	(0.39)	(0.89)	(0.56)	(0.62)	(0.36)
Stepdown P-Value	(0.94)	(0.99)	(0.84)	(0.99)	(0.96)	(0.98)	(0.95)	(0.97)	(0.96)	(0.99)	(0.95)
Days of Sport (Weekly)	-0.43	-0.56	-0.33	-0.32	-0.66	-0.62	-0.54	-0.42	-0.57	-0.63	-0.56
Unadjusted P-Value	(0.06)**	(0.04)***	(0.20)	(0.33)	(0.03)***	(0.06)**	(0.13)*	(0.04)***	(0.13)*	(0.11)*	(0.02)***
Stepdown P-Value	(0.58)	(0.37)	(0.84)	(0.98)	(0.32)	(0.58)	(0.88)	(0.33)	(0.69)	(0.79)	(0.27)
Num. of Friends	-0.76	-0.57	-0.35	-0.69	0.18	-2.81	-2.24	0.55	-2.53	-0.28	-1.16
Unadjusted P-Value	(0.54)	(0.59)	(0.76)	(0.56)	(0.92)	(0.14)*	(0.14)*	(0.61)	(0.27)	(0.43)	(0.40)
Stepdown P-Value	(0.98)	(0.99)	(0.98)	(0.99)	(0.99)	(0.69)	(0.88)	(0.97)	(0.89)	(0.99)	(0.96)
Volunteers	-0.02	0.01	0.04	-0.05	-0.01	-0.02	-0.04	0.20	-0.04	-0.03	0.08
Unadjusted P-Value	(0.71)	(0.92)	(0.50)	(0.52)	(0.84)	(0.79)	(0.74)	(0.00)***	(0.68)	(0.74)	(0.15)*
Stepdown P-Value	(0.99)	(0.99)	(0.97)	(0.99)	(0.99)	(0.98)	(0.95)	(0.00)***	(0.96)	(0.99)	(0.84)
Trust Score	0.03	0.06	0.04	0.09	0.13	0.45	0.45	-0.38	-0.09	0.11	-0.06
Unadjusted P-Value	(0.85)	(0.76)	(0.83)	(0.71)	(0.57)	(0.08)**	(0.11)*	(0.03)***	(0.72)	(0.74)	(0.74)
Stepdown P-Value	(0.99)	(0.99)	(0.98)	(0.99)	(0.99)	(0.66)	(0.85)	(0.25)	(0.96)	(0.99)	(0.99)

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach preschools from multiple methods. We compare Reggio Approach individuals with those who attended other preschools. Column title indicates the corresponding control set and and model. **None** = OLS estimate with no control variables. **BIC** = OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls formale indicator, migrant indicator, and ITC attendance indicator. **Full** = OLS estimate with the full set of controls. **PSMR** = propensity score matching between Reggio Approach people and people in Reggio who attended other types of preschool. **KMR** = Epanechinkov kernel matching between Reggio Approach people and people in Reggio who attended other types of preschool. **DidPm** = difference-in-differences estimate of (Reggio Muni – Parma Muni) – (Reggio Other – Parma Other). **KMPm** = Epanechinkov kernel matching between Reggio Approach people and people who attended Parma preschools. **KMDidPm** = difference-in-differences kernel matching estimate of (Reggio Muni – Parma Muni) – (Reggio Other – Parma Other). **DidPv** = difference-in-differences estimate of (Reggio Muni – Padova Muni) – (Reggio Other – Padova Other). **KMDidPv** = difference-in-differences kernel matching estimate of (Reggio Muni – Padova Muni) – (Reggio Other – Padova Other). **KMPv** = Epanechinkov kernel matching between Reggio Approach people and people who attended Padova preschools.

Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively.

Table 19

Estimation Results for Main Outcomes, Comparison to Non-RA Preschools, Age-30 Cohort

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
IQ Factor	0.01	−0.01	0.04	−0.12	−0.01	−0.36	−0.15	−0.56	0.02	0.18	−0.65
Unadjusted P-Value	(0.95)	(0.92)	(0.77)	(0.58)	(0.98)	(0.10)*	(0.53)	(0.00)***	(0.94)	(0.50)	(0.00)***
Stepdown P-Value	(0.99)	(0.99)	(0.96)	(0.89)	(0.99)	(0.72)	(0.96)	(0.01)***	(0.99)	(0.94)	(0.00)***
Graduate from High School	−0.05	−0.04	−0.06	−0.04	−0.02	0.07	0.03	−0.01	−0.09	−0.12	−0.00
Unadjusted P-Value	(0.31)	(0.38)	(0.23)	(0.44)	(0.67)	(0.36)	(0.74)	(0.79)	(0.25)	(0.16)	(0.93)
Stepdown P-Value	(0.99)	(0.99)	(0.54)	(0.89)	(0.02)***	(0.99)	(0.99)	(0.99)	(0.99)	(0.94)	(0.99)
Higli School Grade	1.05	0.56	0.66	1.40	0.52	1.57	−2.05	6.73	−1.56	0.85	6.25
Unadjusted P-Value	(0.49)	(0.71)	(0.67)	(0.40)	(0.77)	(0.70)	(0.53)	(0.00)***	(0.67)	(0.83)	(0.00)***
Stepdown P-Value	(0.99)	(0.99)	(0.89)	(0.89)	(0.02)***	(0.99)	(0.99)	(0.05)**	(0.99)	(0.99)	(0.01)***
Higli School Grade (Standardized)	2.78	1.96	2.01	2.73	2.28	2.95	1.93	1.87	0.51	2.22	3.28
Unadjusted P-Value	(0.15)*	(0.33)	(0.28)	(0.13)*	(0.33)	(0.36)	(0.46)	(0.28)	(0.91)	(0.62)	(0.05)**
Stepdown P-Value	(0.87)	(0.99)	(0.62)	(0.89)	(0.02)***	(0.99)	(0.99)	(0.83)	(0.99)	(0.94)	(0.41)
Max Edu: University	0.02	0.01	0.00	−0.03	−0.05	0.08	−0.05	−0.24	0.17	0.09	−0.24
Unadjusted P-Value	(0.76)	(0.89)	(1.00)	(0.71)	(0.49)	(0.51)	(0.66)	(0.00)***	(0.23)	(0.66)	(0.00)***
Stepdown P-Value	(0.99)	(0.99)	(0.99)	(0.89)	(0.02)***	(0.99)	(0.99)	(0.01)***	(0.97)	(0.94)	(0.01)***
Employed	−0.03	−0.03	−0.02	−0.02	−0.02	0.11	0.15	0.01	−0.03	−0.03	0.05
Unadjusted P-Value	(0.39)	(0.43)	(0.64)	(0.56)	(0.59)	(0.17)	(0.02)***	(0.78)	(0.75)	(0.78)	(0.19)
Stepdown P-Value	(0.99)	(0.99)	(0.84)	(0.89)	(0.02)***	(0.80)	(0.41)	(0.99)	(0.99)	(0.94)	(0.78)
Hours Worked Per Week	−0.02	0.19	0.63	0.64	0.80	3.26	7.32	1.82	2.21	1.46	0.54
Unadjusted P-Value	(0.99)	(0.93)	(0.77)	(0.85)	(0.70)	(0.44)	(0.11)*	(0.47)	(0.64)	(0.76)	(0.78)
Stepdown P-Value	(0.99)	(0.99)	(0.96)	(0.99)	(0.02)***	(0.99)	(0.78)	(0.92)	(0.99)	(0.99)	(0.99)
Married or Cohabitating	0.08	0.06	0.05	−0.02	−0.03	0.10	0.08	−0.01	0.16	0.14	−0.10
Unadjusted P-Value	(0.29)	(0.46)	(0.52)	(0.85)	(0.73)	(0.40)	(0.60)	(0.91)	(0.26)	(0.37)	(0.12)*
Stepdown P-Value	(0.98)	(0.99)	(0.78)	(0.99)	(0.02)***	(0.99)	(0.99)	(0.99)	(0.98)	(0.94)	(0.63)
Not Obese	0.01	0.00	0.03	−0.03	−0.01	−0.03	0.15	−0.14	−0.08	−0.03	−0.10
Unadjusted P-Value	(0.87)	(0.95)	(0.61)	(0.76)	(0.87)	(0.79)	(0.17)	(0.02)***	(0.54)	(0.82)	(0.08)**
Stepdown P-Value	(0.99)	(0.99)	(0.83)	(0.99)	(0.02)***	(0.99)	(0.89)	(0.24)	(0.99)	(0.99)	(0.54)

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
Not Overweight.	−0.06	−0.01	−0.02	0.04	0.01	0.11	0.04	−0.01	−0.06	−0.02	0.01
Unadjusted P-Value	(0.40)	(0.89)	(0.81)	(0.58)	(0.88)	(0.29)	(0.75)	(0.88)	(0.60)	(0.91)	(0.86)
Stepdown P-Value	(0.99)	(0.99)	(0.98)	(0.89)	(0.99)	(0.99)	(0.99)	(0.99)	(0.99)	(0.99)	(0.99)
Locus of Control – positive	0.11	0.08	0.06	0.07	0.09	0.31	0.23	0.22	0.16	0.35	−0.22
Unadjusted P-Value	(0.40)	(0.49)	(0.59)	(0.60)	(0.52)	(0.16)	(0.51)	(0.08)**	(0.52)	(0.14)*	(0.04)***
Stepdown P-Value	(0.99)	(0.99)	(0.83)	(0.89)	(0.02)***	(0.88)	(0.96)	(0.43)	(0.99)	(0.88)	(0.35)
Depression Score – positive	0.16	−0.03	0.04	−0.29	−0.32	1.24	1.33	−1.71	−0.21	1.38	−2.32
Unadjusted P-Value	(0.87)	(0.97)	(0.96)	(0.74)	(0.79)	(0.39)	(0.44)	(0.05)***	(0.91)	(0.43)	(0.00)***
Stepdown P-Value	(0.99)	(0.99)	(0.99)	(0.99)	(0.02)***	(0.99)	(0.96)	(0.41)	(0.99)	(0.94)	(0.03)***
Volunteers	0.11	0.10	0.11	0.10	0.11	−0.06	0.07	−0.14	−0.01	−0.01	−0.12
Unadjusted P-Value	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.00)***	(0.50)	(0.58)	(0.01)***	(0.94)	(0.95)	(0.01)***
Stepdown P-Value	(0.15)	(0.23)	(0.28)	(0.01)***	(0.02)***	(0.99)	(0.99)	(0.15)	(0.99)	(0.99)	(0.12)
Ever Voted for Municipal	−0.07	−0.03	−0.02	0.04	0.02	−0.05	0.08	0.12	0.19	0.34	−0.04
Unadjusted P-Value	(0.36)	(0.66)	(0.77)	(0.51)	(0.82)	(0.61)	(0.38)	(0.07)**	(0.11)*	(0.01)***	(0.55)
Stepdown P-Value	(0.99)	(0.99)	(0.95)	(0.89)	(0.02)***	(0.99)	(0.96)	(0.41)	(0.94)	(0.09)**	(0.99)
Ever Voted for Regional	−0.11	−0.08	−0.07	−0.02	−0.04	−0.05	0.02	0.15	0.26	0.38	−0.04
Unadjusted P-Value	(0.18)	(0.23)	(0.29)	(0.71)	(0.66)	(0.64)	(0.77)	(0.02)***	(0.02)***	(0.01)***	(0.55)
Stepdown P-Value	(0.90)	(0.99)	(0.62)	(0.89)	(0.02)***	(0.99)	(0.99)	(0.25)	(0.65)	(0.02)***	(0.99)
Num. of Friends	0.73	0.62	0.86	1.25	0.41	4.67	2.50	−2.74	1.83	1.21	−0.53
Unadjusted P-Value	(0.45)	(0.60)	(0.53)	(0.52)	(0.72)	(0.01)***	(0.14)*	(0.06)**	(0.33)	(0.53)	(0.58)
Stepdown P-Value	(0.99)	(0.99)	(0.75)	(0.89)	(0.02)***	(0.23)	(0.94)	(0.41)	(0.99)	(0.94)	(0.99)
Trust Score	0.38	0.28	0.34	0.20	0.16	0.45	0.52	0.50	0.40	0.17	0.78
Unadjusted P-Value	(0.07)**	(0.20)	(0.13)*	(0.59)	(0.50)	(0.28)	(0.23)	(0.02)***	(0.27)	(0.64)	(0.00)***
Stepdown P-Value	(0.69)	(0.98)	(0.41)	(0.89)	(0.02)***	(0.97)	(0.96)	(0.24)	(0.99)	(0.94)	(0.00)***

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach preschools from multiple methods. We compare Reggio Approach individuals with those who attended other preschools. Column title indicates the corresponding control set and and model. **None** = OLS estimate with no control variables. **BIC** = OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls formale indicator, migrant indicator, and ITC attendance indicator. **Full** = OLS estimate with the full set of controls. **PSMR** = propensity score matching between Reggio Approach individuals and individuals in Reggio Emilia who attended other types of preschool. **KMR** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Reggio Emilia who attended other types of preschool. **DidPm** = difference-in-differences estimate of (Reggio Muni − Parma Muni) − (Reggio Other − Parma Other). **KMDidPm** = difference-in-differences kernel matching estimate of (Reggio Muni − Parma Muni) − (Reggio Other − Parma Other). **KMPm** = Epanechinikov kernel matching between Reggio Approach individuals and individuals who attended Parma preschools. **DidPv** = difference-in-differences estimate of (Reggio Muni − Padova Muni) − (Reggio Other − Padova Other). **KMDidPv** = difference-in-differences kernel matching estimate of (Reggio Muni − Padova Muni) − (Reggio Other − Padova Other). **KMPv** = Epanechinikov kernel matching between Reggio Approach individuals and individuals who attended Padova preschools.

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Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively.

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Table 20

Estimation Results for Main Outcomes, Comparison to No Preschools, Age-30 Cohort

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
IQ Factor	0.14	0.03	−0.05	0.15	0.10	−0.41	−0.01	−0.42	−0.21	0.16	−0.25
Unadjusted P-Value	(0.39)	(0.82)	(0.74)	(0.43)	(0.58)	(0.10)*	(0.94)	(0.01)***	(0.46)	(0.43)	(0.11)*
Stepdown P-Value	(0.99)	(0.99)	(0.91)	(0.99)	(0.33)	(0.82)	(0.99)	(0.16)	(0.99)	(0.98)	(0.75)
Graduate from High School	−0.03	0.02	0.03	0.03	0.04	0.08	0.14	−0.01	−0.05	−0.08	−0.03
Unadjusted P-Value	(0.55)	(0.62)	(0.57)	(0.66)	(0.44)	(0.37)	(0.23)	(0.88)	(0.58)	(0.60)	(0.61)
Stepdown P-Value	(0.99)	(0.99)	(0.82)	(0.99)	(0.33)	(0.99)	(0.98)	(0.98)	(0.99)	(0.98)	(0.98)
Higli School Grade	4.54	4.98	4.62	5.57	5.60	2.20	2.42	15.02	3.17	3.08	6.43
Unadjusted P-Value	(0.03)***	(0.02)***	(0.04)***	(0.00)***	(0.03)***	(0.64)	(0.73)	(0.01)***	(0.45)	(0.57)	(0.00)***
Stepdown P-Value	(0.14)	(0.14)	(0.08)**	(0.05)**	(0.33)	(0.99)	(0.98)	(0.12)	(0.99)	(0.98)	(0.01)***
Higli School Grade (Standardized)	6.39	6.88	6.54	6.91	7.46	6.07	6.93	7.76	6.23	5.54	2.85
Unadjusted P-Value	(0.01)***	(0.00)***	(0.01)***	(0.00)***	(0.01)***	(0.13)*	(0.20)	(0.07)**	(0.20)	(0.36)	(0.18)
Stepdown P-Value	(0.03)***	(0.04)***	(0.04)***	(0.04)***	(0.16)	(0.84)	(0.98)	(0.44)	(0.91)	(0.98)	(0.84)
Max Edu: University	−0.07	−0.03	−0.04	−0.02	−0.02	−0.02	0.06	−0.23	−0.15	−0.20	0.01
Unadjusted P-Value	(0.32)	(0.72)	(0.57)	(0.80)	(0.83)	(0.86)	(0.86)	(0.03)***	(0.30)	(0.19)	(0.89)
Stepdown P-Value	(0.98)	(0.99)	(0.81)	(0.99)	(0.33)	(0.99)	(0.98)	(0.26)	(0.99)	(0.98)	(0.99)
Employed	0.04	0.02	0.04	0.05	0.01	0.13	0.15	0.01	0.01	0.01	0.05
Unadjusted P-Value	(0.38)	(0.69)	(0.35)	(0.39)	(0.90)	(0.13)*	(0.01)***	(0.83)	(0.95)	(0.92)	(0.31)
Stepdown P-Value	(0.99)	(0.99)	(0.59)	(0.99)	(0.33)	(0.86)	(0.37)	(0.98)	(0.99)	(0.98)	(0.95)
Hours Worked Per Week	6.84	4.30	5.16	2.80	3.63	8.95	10.43	1.65	4.79	3.82	3.31
Unadjusted P-Value	(0.01)***	(0.12)*	(0.07)**	(0.34)	(0.33)	(0.07)**	(0.00)***	(0.63)	(0.37)	(0.50)	(0.23)
Stepdown P-Value	(0.10)**	(0.76)	(0.17)	(0.99)	(0.33)	(0.65)	(0.20)	(0.96)	(0.99)	(0.98)	(0.92)
Married or Cohabitating	−0.01	−0.08	−0.10	−0.05	−0.03	−0.12	−0.03	0.05	−0.03	0.08	−0.01
Unadjusted P-Value	(0.85)	(0.33)	(0.25)	(0.56)	(0.73)	(0.37)	(0.86)	(0.66)	(0.86)	(0.60)	(0.90)
Stepdown P-Value	(0.99)	(0.99)	(0.51)	(0.99)	(0.33)	(0.99)	(0.98)	(0.98)	(0.99)	(0.98)	(0.99)
Not Obese	−0.00	−0.06	−0.06	−0.09	−0.06	−0.04	0.11	−0.23	−0.28	−0.16	0.13
Unadjusted P-Value	(0.99)	(0.30)	(0.32)	(0.18)	(0.45)	(0.70)	(0.25)	(0.00)***	(0.05)**	(0.22)	(0.13)*
Stepdown P-Value	(0.99)	(0.99)	(0.58)	(0.95)	(0.33)	(0.99)	(0.98)	(0.08)**	(0.42)	(0.98)	(0.78)

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
Not Overweight	-0.07	0.01	-0.02	0.03	0.02	0.00	0.02	0.14	0.01	-0.04	-0.04
Unadjusted P-Value	(0.29)	(0.87)	(0.78)	(0.66)	(0.74)	(0.99)	(0.88)	(0.18)	(0.93)	(0.82)	(0.60)
Stepdown P-Value	(0.98)	(0.99)	(0.94)	(0.99)	(0.33)	(0.99)	(0.98)	(0.72)	(0.99)	(0.98)	(0.98)
Locus of Control – positive	0.07	-0.05	-0.08	-0.11	-0.01	-0.08	-0.05	0.69	0.02	0.29	-0.04
Unadjusted P-Value	(0.59)	(0.71)	(0.56)	(0.34)	(0.96)	(0.76)	(0.88)	(0.00)***	(0.94)	(0.27)	(0.81)
Stepdown P-Value	(0.99)	(0.99)	(0.77)	(0.99)	(0.98)	(0.99)	(0.98)	(0.04)***	(0.99)	(0.98)	(0.98)
Depression Score – positive	1.26	-0.04	-0.20	0.37	0.29	-0.14	2.10	-0.42	-1.10	1.18	0.28
Unadjusted P-Value	(0.20)	(0.97)	(0.83)	(0.70)	(0.79)	(0.93)	(0.12)*	(0.74)	(0.58)	(0.54)	(0.79)
Stepdown P-Value	(0.95)	(0.99)	(0.97)	(0.99)	(0.33)	(0.99)	(0.98)	(0.98)	(0.99)	(0.98)	(0.98)
Volunteers	-0.08	-0.08	-0.08	-0.03	-0.03	-0.12	-0.04	-0.18	-0.32	-0.28	0.04
Unadjusted P-Value	(0.17)	(0.12)*	(0.13)*	(0.61)	(0.63)	(0.34)	(0.67)	(0.06)**	(0.01)***	(0.07)**	(0.45)
Stepdown P-Value	(0.88)	(0.85)	(0.33)	(0.99)	(0.33)	(0.98)	(0.98)	(0.40)	(0.06)**	(0.51)	(0.98)
Ever Voted for Municipal	0.10	0.03	0.04	-0.07	0.02	-0.08	-0.01	0.31	-0.07	0.03	0.34
Unadjusted P-Value	(0.20)	(0.61)	(0.53)	(0.43)	(0.83)	(0.42)	(0.91)	(0.00)***	(0.59)	(0.88)	(0.00)***
Stepdown P-Value	(0.96)	(0.99)	(0.78)	(0.99)	(0.33)	(0.99)	(0.99)	(0.02)***	(0.99)	(0.98)	(0.00)***
Ever Voted for Regional	0.05	-0.02	-0.01	-0.09	-0.01	-0.06	-0.03	0.31	0.03	0.07	0.27
Unadjusted P-Value	(0.55)	(0.75)	(0.92)	(0.33)	(0.92)	(0.54)	(0.83)	(0.00)***	(0.84)	(0.59)	(0.00)***
Stepdown P-Value	(0.99)	(0.99)	(0.97)	(0.95)	(0.98)	(0.99)	(0.98)	(0.02)***	(0.99)	(0.98)	(0.01)***
Num. of Friends	0.02	0.24	0.20	0.02	-0.41	2.16	0.52	-2.69	4.48	5.22	-1.20
Unadjusted P-Value	(0.99)	(0.88)	(0.91)	(0.99)	(0.81)	(0.31)	(0.89)	(0.14)*	(0.08)**	(0.16)	(0.50)
Stepdown P-Value	(0.99)	(0.99)	(0.97)	(0.99)	(0.33)	(0.98)	(0.98)	(0.66)	(0.80)	(0.88)	(0.98)
Trust Score	-0.06	0.01	0.21	-0.00	0.07	0.26	0.08	0.26	0.15	0.10	0.79
Unadjusted P-Value	(0.79)	(0.96)	(0.36)	(0.99)	(0.76)	(0.56)	(0.95)	(0.46)	(0.69)	(0.74)	(0.00)***
Stepdown P-Value	(0.99)	(0.99)	(0.58)	(0.99)	(0.33)	(0.99)	(0.98)	(0.96)	(0.99)	(0.98)	(0.00)***

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach preschools from multiple methods. We compare Reggio Approach individuals with those who did not attend any preschools. Column title indicates the corresponding control set and and model. **None** = OLS estimate with no control variables. **BIC** = OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls for male indicator, migrant indicator, and ITC attendance indicator. **Full** = OLS estimate with the full set of controls. **PSMR** = propensity score matching between Reggio Approach individuals and individuals in Reggio Emilia who did not attend any preschool. **KMR** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Reggio Emilia who attended other types of preschool. **DidPm** = difference-in-differences estimate of (Reggio Muni – Parma Muni) – (Reggio None – Parma None). **KMPm** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Parma who did not attend any preschool. **KMDidPm** = difference-in-differences kernel matching estimate of (Reggio Muni – Parma Muni) – (Reggio None – Parma None). **KMPm** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Parma who did not attend any preschool. **DidPv** = difference-in-differences estimate of (Reggio Muni – Padova Muni) – (Reggio None – Padova None). **KMDidPv** = difference-in-differences estimate of (Reggio Muni – Padova Muni) – (Reggio None – Padova None). **KMPv** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Padova who did not attend any preschool.

Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively.

Table 21

Estimation Results for Main Outcomes, Comparison to Non-RA Preschools, Age–40 Cohort

	Within Reggio					With Parma	With Padova
	None	BIC	Full	PSMR	KMR	KMPm	KMPv
IQ Factor	−0.15	−0.12	−0.14	−0.11	−0.19	−0.32	−0.09
Unadjusted P- Value	(0.22)	(0.29)	(0.22)	(0.34)	(0.16)	(0.00)***	(0.44)
Stepdown P- Value	(0.97)	(0.99)	(0.64)	(0.99)	(0.94)	(0.05)**	(0.98)
Graduate from High School	0.13	0.10	0.12	0.09	0.08	0.03	0.01
Unadjusted P- Value	(0.05)***	(0.14)*	(0.09)**	(0.20)	(0.32)	(0.61)	(0.82)
Stepdown P- Value	(0.46)	(0.89)	(0.45)	(0.96)	(0.99)	(0.96)	(0.98)
High School Grade	−0.66	−0.09	0.36	−0.84	−0.57	4.32	6.54
Unadjusted P- Value	(0.67)	(0.96)	(0.83)	(0.61)	(0.74)	(0.04)***	(0.00)***
Stepdown P- Value	(0.99)	(0.99)	(0.99)	(0.99)	(0.99)	(0.39)	(0.01)***
High School Grade (Standardized)	−1.13	−0.17	0.36	0.74	−0.69	−1.87	2.59
Unadjusted P- Value	(0.58)	(0.94)	(0.87)	(0.76)	(0.77)	(0.29)	(0.17)
Stepdown P- Value	(0.99)	(0.99)	(0.99)	(0.99)	(0.99)	(0.96)	(0.86)
Max Edu: University	0.07	0.05	0.03	0.01	−0.01	−0.12	−0.16
Unadjusted P- Value	(0.20)	(0.34)	(0.62)	(0.92)	(0.88)	(0.07)**	(0.02)***
Stepdown P- Value	(0.97)	(0.99)	(0.94)	(0.99)	(0.99)	(0.63)	(0.24)
Employed	0.01	0.01	0.01	0.03	0.07	0.00	0.07
Unadjusted P- Value	(0.75)	(0.79)	(0.73)	(0.46)	(0.07)**	(0.90)	(0.08)**
Stepdown P- Value	(0.99)	(0.99)	(0.97)	(0.99)	(0.68)	(0.96)	(0.62)
Hours Worked Per Week	−0.90	−1.17	−1.28	−1.71	0.60	1.75	5.08
Unadjusted P- Value	(0.64)	(0.58)	(0.56)	(0.38)	(0.78)	(0.32)	(0.02)***
Stepdown P- Value	(0.99)	(0.99)	(0.85)	(0.99)	(0.99)	(0.96)	(0.24)
Married or Cohabitating	0.03	0.02	0.02	0.01	−0.04	0.06	0.16
Unadjusted P- Value	(0.69)	(0.81)	(0.80)	(0.84)	(0.62)	(0.40)	(0.02)***
Stepdown P- Value	(0.99)	(0.99)	(0.98)	(0.99)	(0.99)	(0.96)	(0.24)
Not Obese	−0.04	0.02	0.04	0.03	0.03	−0.10	−0.00
Unadjusted P- Value	(0.59)	(0.80)	(0.56)	(0.76)	(0.76)	(0.16)	(1.00)
Stepdown P- Value	(0.99)	(0.99)	(0.91)	(0.99)	(0.99)	(0.82)	(0.99)

	Within Reggio					With Parma	With Padova
	None	BIC	Full	PSMR	KMR	KMPm	KMPv
Not Overweight	0.05	0.03	0.03	−0.01	−0.00	0.06	−0.03
Unadjusted P- Value	(0.48)	(0.63)	(0.67)	(0.92)	(0.99)	(0.41)	(0.68)
Stepdown P- Value	(0.99)	(0.99)	(0.96)	(0.99)	(0.99)	(0.96)	(0.98)
Locus of Control – positive	0.13	0.14	0.11	0.19	0.11	0.23	0.17
Unadjusted P- Value	(0.36)	(0.31)	(0.44)	(0.27)	(0.48)	(0.09)**	(0.18)
Stepdown P- Value	(0.99)	(0.98)	(0.80)	(0.98)	(0.99)	(0.66)	(0.86)
Depression Score – positive	0.56	1.37	1.09	1.28	0.98	−0.72	0.91
Unadjusted P- Value	(0.55)	(0.11)*	(0.22)	(0.16)	(0.36)	(0.40)	(0.27)
Stepdown P- Value	(0.99)	(0.89)	(0.60)	(0.92)	(0.99)	(0.96)	(0.95)
Volunteers	0.05	0.01	0.03	−0.01	−0.00	−0.09	−0.03
Unadjusted P- Value	(0.23)	(0.75)	(0.54)	(0.93)	(0.96)	(0.12)*	(0.50)
Stepdown P- Value	(0.97)	(0.99)	(0.92)	(0.99)	(0.99)	(0.72)	(0.98)
Ever Voted for Municipal	−0.07	0.07	0.06	0.09	0.04	0.13	0.07
Unadjusted P- Value	(0.38)	(0.28)	(0.38)	(0.15)*	(0.69)	(0.08)**	(0.36)
Stepdown P- Value	(0.99)	(0.98)	(0.75)	(0.92)	(0.99)	(0.66)	(0.96)
Ever Voted for Regional	−0.05	0.08	0.07	0.10	0.04	0.25	0.19
Unadjusted P- Value	(0.53)	(0.23)	(0.34)	(0.17)	(0.67)	(0.00)***	(0.01)***
Stepdown P- Value	(0.99)	(0.98)	(0.69)	(0.95)	(0.99)	(0.01)***	(0.16)
Num. of Friends	1.39	0.95	1.09	0.88	1.42	0.25	0.16
Unadjusted P- Value	(0.15)*	(0.34)	(0.29)	(0.44)	(0.16)	(0.80)	(0.88)
Stepdown P- Value	(0.94)	(0.99)	(0.61)	(0.99)	(0.94)	(0.96)	(0.98)
Trust Score	0.02	−0.11	0.05	−0.27	−0.21	−0.24	0.13
Unadjusted P- Value	(0.95)	(0.64)	(0.84)	(0.33)	(0.45)	(0.31)	(0.51)
Stepdown P- Value	(0.99)	(0.99)	(0.99)	(0.99)	(0.99)	(0.96)	(0.98)

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach preschools from multiple methods. We compare Reggio Approach individuals with those who attended other preschools. Column title indicates the corresponding control set and model. **None** = OLS estimate with no control variables. **BIC** = OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls for male indicator, migrant indicator, and ITC attendance indicator. **Full** = OLS estimate with the full set of controls. **PSMR** = propensity score matching between Reggio Approach individuals and individuals in Reggio Emilia who attended other types of preschool. **KMR** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Reggio Emilia who attended other types of preschool. **PSMPm** = propensity score matching between Reggio Approach individuals and individuals who attended Parma preschools. **PSMPv** = propensity score matching between Reggio Approach individuals and individuals who attended Padova preschools. **KMPv** = Epanechinikov kernel matching between Reggio Approach individuals and individuals who attended Parma preschools. **KMPm** = Epanechinikov kernel matching between Reggio Approach individuals and individuals who attended Padova preschools. *Difference-indifference is not available for this cohort due to non-existence of municipal preschools in Parma and Padova.*

Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively.

Table 22

Estimation Results for Main Outcomes, Comparison to No Preschools, Age-40 Cohort

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR.	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
IQ Factor	0.01	0.02	0.04	0.13	0.04	0.51	0.15	-0.40	0.19	0.09	-0.34
Unadjusted P-Value	(0.97)	(0.86)	(0.80)	(0.36)	(0.80)	(0.06)**	(0.42)	(0.00)***	(0.45)	(0.67)	(0.00)***
Stepdown P-Value	(0.99)	(0.99)	(0.88)	(0.95)	(0.99)	(0.51)	(0.99)	(0.02)***	(0.99)	(0.99)	(0.06)**
Graduate from High School	-0.07	-0.04	-0.06	-0.07	-0.04	0.04	0.04	-0.03	-0.14	-0.07	0.09
Unadjusted P-Value	(0.17)	(0.47)	(0.33)	(0.25)	(0.45)	(0.74)	(0.61)	(0.64)	(0.21)	(0.43)	(0.28)
Stepdown P-Value	(0.86)	(0.99)	(0.59)	(0.92)	(0.99)	(0.99)	(0.99)	(0.97)	(0.98)	(0.99)	(0.95)
High School Grade	0.59	1.13	1.77	1.53	1.28	-3.50	-4.57	8.62	-1.17	3.12	4.49
Unadjusted P-Value	(0.70)	(0.47)	(0.35)	(0.34)	(0.45)	(0.40)	(0.15)	(0.00)***	(0.75)	(0.20)	(0.06)**
Stepdown P-Value	(0.99)	(0.99)	(0.59)	(0.95)	(0.99)	(0.99)	(0.74)	(0.01)***	(0.99)	(0.94)	(0.52)
High School Grade (Standardized)	0.43	0.81	0.94	1.54	0.82	-4.24	-2.88	0.26	-2.19	3.23	0.03
Unadjusted P-Value	(0.82)	(0.68)	(0.69)	(0.43)	(0.70)	(0.26)	(0.38)	(0.88)	(0.57)	(0.33)	(0.99)
Stepdown P-Value	(0.99)	(0.99)	(0.82)	(0.95)	(0.99)	(0.99)	(0.99)	(0.97)	(0.99)	(0.98)	(0.99)
Max Edu: University	0.01	0.05	0.11	0.03	0.04	-0.08	-0.13	0.03	-0.13	-0.06	0.03
Unadjusted P-Value	(0.82)	(0.39)	(0.07)**	(0.64)	(0.48)	(0.53)	(0.13)*	(0.62)	(0.34)	(0.48)	(0.75)
Stepdown P-Value	(0.99)	(0.97)	(0.35)	(0.98)	(0.99)	(0.99)	(0.86)	(0.97)	(0.98)	(0.99)	(0.99)
Employed	0.06	0.05	0.05	0.06	0.05	-0.02	0.03	0.00	0.04	0.11	0.02
Unadjusted P-Value	(0.14)*	(0.14)*	(0.16)	(0.18)	(0.18)	(0.81)	(0.56)	(0.98)	(0.67)	(0.05)**	(0.66)
Stepdown P-Value	(0.78)	(0.79)	(0.58)	(0.84)	(0.88)	(0.99)	(0.99)	(0.99)	(0.99)	(0.79)	(0.95)
Hours Worked Per Week	5.71	6.51	7.39	7.43	7.20	1.43	6.44	-0.11	4.09	8.95	5.02
Unadjusted P-Value	(0.02)***	(0.01)***	(0.01)***	(0.00)***	(0.01)***	(0.75)	(0.03)***	(0.96)	(0.41)	(0.01)***	(0.07)**
Stepdown P-Value	(0.21)	(0.12)	(0.04)***	(0.08)**	(0.12)	(0.99)	(0.60)	(0.99)	(0.99)	(0.23)	(0.55)
Married or Cohabitating	0.02	-0.01	0.05	-0.00	-0.02	-0.07	-0.07	0.18	-0.15	-0.16	0.22
Unadjusted P-Value	(0.80)	(0.88)	(0.57)	(0.96)	(0.75)	(0.66)	(0.52)	(0.02)***	(0.34)	(0.17)	(0.03)***
Stepdown P-Value	(0.99)	(0.99)	(0.78)	(0.99)	(0.99)	(0.99)	(0.99)	(0.20)	(0.98)	(0.83)	(0.33)
Not Obese	0.14	0.11	0.01	0.12	0.10	0.33	0.21	-0.19	0.16	0.01	0.01
Unadjusted P-Value	(0.06)**	(0.14)*	(0.91)	(0.11)*	(0.21)	(0.03)***	(0.04)***	(0.00)***	(0.33)	(0.96)	(0.91)
Stepdown P-Value	(0.50)	(0.79)	(0.96)	(0.74)	(0.91)	(0.29)	(0.53)	(0.04)***	(0.98)	(0.99)	(0.99)

	Within Reggio					With Parma			With Padova		
	None	BIC	Full	PSMR.	KMR	DidPm	KMDidPm	KMPm	DidPv	KMDidPv	KMPv
Not Overweight.	−0.03	0.03	0.07	0.05	0.06	0.07	0.10	0.02	−0.08	0.01	0.05
Unadjusted P-Value	(0.66)	(0.68)	(0.33)	(0.43)	(0.44)	(0.65)	(0.38)	(0.76)	(0.56)	(0.90)	(0.61)
Stepdown P-Value	(0.99)	(0.99)	(0.59)	(0.95)	(0.99)	(0.99)	(0.99)	(0.97)	(0.99)	(0.99)	(0.95)
Locus of Control – positive	0.14	0.23	0.28	0.26	0.21	0.31	0.19	0.12	0.20	0.31	0.04
Unadjusted P-Value	(0.29)	(0.07)**	(0.05)**	(0.05)**	(0.13)*	(0.28)	(0.34)	(0.39)	(0.47)	(0.12)*	(0.81)
Stepdown P-Value	(0.97)	(0.63)	(0.30)	(0.57)	(0.79)	(0.99)	(0.99)	(0.97)	(0.99)	(0.79)	(0.99)
Depression Score – positive	2.25	2.24	2.10	2.90	2.16	−1.72	0.12	0.93	2.20	2.03	0.35
Unadjusted P-Value	(0.02)***	(0.02)***	(0.05)**	(0.00)***	(0.03)***	(0.37)	(0.92)	(0.26)	(0.25)	(0.14)*	(0.73)
Stepdown P-Value	(0.20)	(0.19)	(0.21)	(0.08)**	(0.33)	(0.99)	(0.99)	(0.90)	(0.98)	(0.80)	(0.99)
Volunteers	−0.11	−0.08	−0.11	−0.07	−0.07	0.11	−0.01	−0.14	−0.06	−0.13	0.02
Unadjusted P-Value	(0.05)***	(0.16)	(0.13)*	(0.30)	(0.29)	(0.37)	(0.90)	(0.03)***	(0.56)	(0.12)*	(0.71)
Stepdown P-Value	(0.43)	(0.79)	(0.35)	(0.95)	(0.95)	(0.99)	(0.99)	(0.27)	(0.99)	(0.81)	(0.95)
Ever Voted for Municipal	0.19	0.15	0.11	0.17	0.19	0.08	−0.02	0.32	−0.06	−0.05	0.41
Unadjusted P-Value	(0.02)***	(0.05)**	(0.18)	(0.08)**	(0.03)***	(0.61)	(0.97)	(0.00)***	(0.68)	(0.65)	(0.00)***
Stepdown P-Value	(0.21)	(0.40)	(0.53)	(0.66)	(0.33)	(0.99)	(0.99)	(0.90)	(0.99)	(0.99)	(0.00)***
Ever Voted for Regional	0.20	0.16	0.13	0.18	0.20	0.15	0.03	0.41	−0.09	−0.06	0.41
Unadjusted P-Value	(0.01)***	(0.04)***	(0.14)*	(0.07)**	(0.02)***	(0.32)	(0.84)	(0.00)***	(0.54)	(0.52)	(0.00)***
Stepdown P-Value	(0.20)	(0.37)	(0.40)	(0.64)	(0.32)	(0.99)	(0.99)	(0.00)***	(0.99)	(0.99)	(0.00)***
Num. of Friends	−0.68	−0.07	0.75	−0.13	−0.48	2.17	2.68	−4.77	0.35	1.44	−0.84
Unadjusted P-Value	(0.52)	(0.95)	(0.61)	(0.92)	(0.67)	(0.42)	(0.16)	(0.00)***	(0.90)	(0.33)	(0.61)
Stepdown P-Value	(0.99)	(0.99)	(0.78)	(0.99)	(0.99)	(0.99)	(0.91)	(0.02)***	(0.99)	(0.98)	(0.95)
Trust Score	−0.03	0.01	−0.29	−0.03	0.00	−0.00	0.23	−0.46	0.52	0.10	0.15
Unadjusted P-Value	(0.90)	(0.97)	(0.24)	(0.91)	(1.00)	(1.00)	(0.59)	(0.06)**	(0.31)	(0.79)	(0.59)
Stepdown P-Value	(0.99)	(0.99)	(0.59)	(0.91)	(0.99)	(0.99)	(0.99)	(0.37)	(0.98)	(0.99)	(0.95)

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach preschools from multiple methods. We compare Reggio Approach individuals with those who did not attend any preschools. Column title indicates the corresponding control set and and model. **None** = OLS estimate with no control variables. **BIC** = OLS estimate with controls selected by Bayesian Information Criterion (BIC) and additional controls for male indicator, migrant indicator, and ITC attendance indicator. **Full** = OLS estimate with the full set of controls. **PSMR** = propensity score matching between Reggio Approach individuals and individuals in Reggio Emilia who did not attend any preschool. **KMR** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Reggio Emilia who attended other types of preschool. **DidPm** = difference-in-differences estimate of (Reggio Muni – Parma Other) – (Reggio None – Parma None). **KMPm** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Parma who did not attend any preschool. **KMDidPm** = difference-in-differences kernel matching estimate of (Reggio Muni – Parma Other) – (Reggio None – Parma None). **KMPm** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Parma who did not attend any preschool. **DidPv** = difference-in-differences estimate of (Reggio Muni – Padova Other) – (Reggio None – Padova None). **KMDidPv** = difference-in-differences estimate of (Reggio Muni – Padova Other) – (Reggio None – Padova None). **KMPv** = Epanechinikov kernel matching between Reggio Approach individuals and individuals in Padova who did not attend any preschool.

Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively.

Table 23

Estimation Results for Main Outcomes, Comparison to No Preschools, Comparison to Age-50 Cohort

	Within Age-30			With Age-40		
	OLS30	DiD30	KMDiD30	OLS40	DiD40	KMDiD40
IQ Factor	−0.85	0.25	0.14	−0.61	0.10	0.00
Unadjusted P-Value	(0.00)***	(0.14)*	(0.45)	(0.00)***	(0.52)	(0.99)
Stepdown P-Value	(0.00)***	(0.91)	(0.99)	(0.00)***	(0.08)	(0.99)
Graduate from High School	0.03	−0.16	−0.11	0.06	−0.25	−0.25
Unadjusted P-Value	(0.55)	(0.05)***	(0.82)	(0.20)	(0.00)***	(0.01)***
Stepdown P-Value	(0.86)	(0.57)	(0.99)	(0.56)	(0.06)**	(0.25)
High School Grade	2.91	3.29	1.86	2.80	0.59	0.05
Unadjusted P-Value	(0.02)***	(0.28)	(0.56)	(0.03)***	(0.82)	(1.00)
Stepdown P-Value	(0.18)	(0.91)	(0.99)	(0.19)	(0.98)	(0.99)
High School Grade (Standardized)	3.94	4.86	3.68	2.37	0.28	−0.56
Unadjusted P-Value	(0.02)***	(0.22)	(0.42)	(0.16)	(0.94)	(0.89)
Stepdown P-Value	(0.18)	(0.91)	(0.99)	(0.56)	(0.99)	(0.99)
Max Edu: University	0.03	−0.11	−0.06	0.07	0.00	−0.00
Unadjusted P-Value	(0.50)	(0.17)	(0.54)	(0.13)*	(0.95)	(0.94)
Stepdown P-Value	(0.86)	(0.91)	(0.99)	(0.50)	(0.99)	(0.99)
Employed	0.05	0.07	0.09	0.06	0.08	0.12
Unadjusted P-Value	(0.17)	(0.30)	(0.30)	(0.04)***	(0.24)	(0.86)
Stepdown P-Value	(0.72)	(0.91)	(0.99)	(0.35)	(0.91)	(0.75)
Hours Worked Per Week	1.83	10.29	8.30	3.80	9.01	11.31
Unadjusted P-Value	(0.30)	(0.00)***	(0.04)***	(0.01)***	(0.01)***	(0.00)***
Stepdown P-Value	(0.83)	(0.03)***	(0.24)	(0.18)	(0.06)**	(0.05)**
Married or Cohabitating	−0.27	−0.16	−0.11	0.09	−0.20	−0.21
Unadjusted P-Value	(0.00)***	(0.15)	(0.33)	(0.15)*	(0.05)***	(0.05)**
Stepdown P-Value	(0.00)***	(0.91)	(0.99)	(0.56)	(0.59)	(0.61)
Not Obese	−0.00	−0.05	−0.08	−0.09	0.10	0.05
Unadjusted P-Value	(0.10)*	(0.55)	(0.30)	(0.10)**	(0.23)	(0.56)
Stepdown P-Value	(0.50)	(0.98)	(0.99)	(0.47)	(0.96)	(0.99)

	Within Age-30			With Age-40		
	OLS30	**DiD30**	**KMDiD30**	**OLS40**	**DiD40**	**KMDiD40**
Not Overweight	0.15	0.06	−0.02	0.17	0.06	0.15
Unadjusted P- Value	(0.01)***	(0.56)	(0.87)	(0.00)***	(0.55)	(0.22)
Stepdown P- Value	(0.02)***	(0.98)	(0.99)	(0.02)***	(0.98)	(0.94)
Locus of Control – positive	−0.10	0.21	0.11	0.07	0.34	0.49
Unadjusted P- Value	(0.33)	(0.26)	(0.66)	(0.49)	(0.08)**	(0.05)**
Stepdown P- Value	(0.86)	(0.91)	(0.99)	(0.56)	(0.72)	(0.37)
Depression Score – positive	−0.78	−0.71	−1.07	1.57	0.99	1.46
Unadjusted P- Value	(0.21)	(0.50)	(0.26)	(0.02)***	(0.47)	(0.31)
Stepdown P- Value	(0.80)	(0.98)	(0.99)	(0.18)	(0.98)	(0.95)
Volunteers	−0.20	0.13	0.09	−0.27	0.09	0.07
Unadjusted P- Value	(0.00)***	(0.20)	(0.48)	(0.00)***	(0.32)	(0.50)
Stepdown P- Value	(0.00)***	(0.01)	(0.99)	(0.00)***	(0.96)	(0.99)
Ever Voted for Municipal	0.17	−0.02	−0.04	0.29	0.07	0.14
Unadjusted P- Value	(0.00)***	(0.84)	(0.79)	(0.00)***	(0.52)	(0.24)
Stepdown P- Value	(0.00)***	(0.98)	(0.99)	(0.00)***	(0.98)	(0.94)
Ever Voted for Regional	0.19	−0.11	−0.10	0.32	0.05	0.13
Unadjusted P- Value	(0.00)***	(0.33)	(0.43)	(0.00)***	(0.66)	(0.31)
Stepdown P- Value	(0.00)***	(0.91)	(0.99)	(0.00)***	(0.98)	(0.95)
Num. of Friends	−0.33	−0.32	−1.17	−0.74	−1.03	−1.52
Unadjusted P- Value	(0.57)	(0.84)	(0.57)	(0.35)	(0.43)	(0.25)
Stepdown P- Value	(0.86)	(0.98)	(0.99)	(0.56)	(0.98)	(0.88)
Trust. Score	−0.19	0.43	0.29	−0.46	0.78	0.66
Unadjusted P- Value	(0.34)	(0.23)	(0.49)	(0.02)***	(0.04)***	(0.08)**
Stepdown P- Value	(0.86)	(0.91)	(0.99)	(0.19)	(0.46)	(0.75)

Note 1: This table shows the estimates of the coefficient for attending Reggio Approach preschools from multiple methods. We specify various ways to compare Reggio Approach preschools from multiple methods. We compare Age-50 individuals, who preceded the Reggio Approach, with individuals in age-30 and age-40 cohorts who attended Reggio Approach preschools. Column titles indicate the corresponding control set and model. **OLS30** = OLS estimate that compares Reggio Age-30 individuals who attended Reggio Approach preschools with Reggio Age-50 individuals who did not attend any preschool. **DiD30** = difference-in-differences estimate of (Reggio Age-30 Muni – Reggio Age-50 Other) – (Reggio Age-30 None – Reggio Age-50 None). **KMDiD30** = difference-in-differences kernel matching estimate of (Reggio Age-30 Muni – Reggio Age-50 Other) – (Reggio Age-30 None – Reggio Age-50 None). **OLS40** = OLS estimate that compares Reggio Age-40 individuals who attended Reggio Approach preschools with Reggio Age-50 individuals who did not attend any preschool. **DiD40** = difference-in-differences estimate of (Reggio Age-40 Muni – Reggio Age-50 Other) – (Reggio Age-40 None – Reggio Age-50 None). **KMDiD40** = difference-in-differences kernel matching estimate of (Reggio Age-40 Muni – Reggio Age-50 Other) – (Reggio Age-40 None – Reggio Age-50 None).

Note 2: Both unadjusted p-value and stepdown p-value are reported. ***, **, and * indicate significance of the coefficients at the 15%, 10%, and 5% levels respectively.