Effects of Teacher Gender on Students' Socio-Emotional Skills Development*

Greta Morando[†] and Sonkurt Sen[‡]

[†]University College London

[‡]University of Bonn

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Abstract

Socio-emotional skills are shown to be important for many early and later life outcomes, yet, the evidence on how these skills are shaped within the classroom is limited. In this paper, using nationally representative survey data from England, we study how teacher gender affects students' socio-emotional skills. In order to study the causal effects, we implement a within-observation fixed effects model. Our results show that male teachers have a positive effect on students' socio-emotional skills, mainly on prosociality and these positive effects are concentrated on male students. Our analysis provides some evidence on the mechanism of these effects.

JEL classifications: D91, I21, J13, J24
Keywords: Teachers, Socio-Emotional Skills, Child Development, Role Models

1 Introduction

Young people spend a considerable amount of time in school interacting with teachers. These interactions shape students' early and later life outcomes. In the last two decades, the literature has focused on understanding how teachers influence students' outcomes through several channels such as teachers' gender and ethnicity, their attitudes and teaching techniques. The outcomes of interests studied have mainly been students' short- (Dee, 2004, 2005; Fairlie *et al.*, 2014; Alan *et al.*, 2018; Holt & Gershenson, 2019; Aucejo *et al.*, 2022) and long-term academic and labor market outcomes (Chetty *et al.*, 2014; Gershenson *et al.*, 2018). Yet, there is still a gap on how teachers' affect students' cognitive and non-cognitive skills as these skills might impact individuals' short- and long-term outcomes as well as serve as a mechanism for the relavance of teachers for long-term outcomes. Understanding the role of teachers on skills development is important because these skills have proven to have a strong effect on individuals' outcomes (Heckman *et al.*, 2006; Borghans *et al.*, 2008; Almlund *et al.*, 2011; Kaestner & Callison, 2011; Heckman & Kautz, 2012, 2013; Algan *et al.*, 2014).

In this paper, we focus on a group of these skills, called socio-emotional skills and study their development in the classroom with a specific attention on teachers. Socio-emotional skills can be described as aptitudes that enable individuals to establish robust and meaningful social bonds, competently regulate their emotional responses, and demonstrate empathetic understanding towards others. These skills are shown to be important for later life outcomes such as labor market outcomes (Knack & Keefer, 1997; Carpenter & Seki, 2011; Kosse & Tincani, 2020) and personal well-being (Dohmen *et al.*, 2009). There is some evidence on the formation of these skills within family and in social environments (Kosse *et al.*, 2020; Miller, 2022).[1] but little is known about the formation of these skills within a classroom, possibly due to the fact that most datasets do not include information about the classroom of the young people or about their teacher.

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[1]The literature shows that parental investments might be a mechanisms of how non-cognitive skills and preferences can be transmitted from parents to children (Todd & Wolpin, 2007; Zumbuehl *et al.*, 2021). Although there is evidence for the transmission of preferences (Zumbuehl *et al.*, 2021; Alan *et al.*, 2017) from parents to children, none of these papers focus on study socio-emotional skills.

The literature has extensively documented the gender differences in both cognitive (Jacob, 2002) and non-cognitive skills (Lynn & Martin, 1997; Costa Jr et al., 2001; Schmitt et al., 2008) as well as academic achievement (OECD, 2015) with females typically exhibiting more favorable outcomes. A significant body of literature aims to identify the factors underlying such gender disparities. Previous investigations have identified demographic concordance between students and teachers as one possible mechanism for ameliorating student outcomes (Dee, 2004, 2005). The disproportionate representation of females in the teaching profession may contribute to the this gender gap in academic outcomes. For example in the UK, where our data comes from, 75.5% of teachers are females. The literature is yet to study the causes of gender differences in cognitive and non-cognitive skills in the classroom[2] while there are several studying aiming to understand the development of these skills within family (Cunha & Heckman, 2007; Doyle et al., 2017; Zumbuehl et al., 2021).

We aim to close this gap by studying how teacher gender affects students' socio-emotional skills, mainly internalized and externalized behavior and prosociality, as well as how parents respond to teacher gender in terms of their investments in their children and the students' enjoyment from the courses and from school in general. This is a crucial topic because the literature shows that representation in the classroom is important for many academic and behavioral outcomes (Dee, 2004; Lindsay & Hart, 2017), yet, a noticeable gap in the existing literature pertains to the lack of empirical inquiry on the potential impact of teacher characteristics on the development of socio-emotional skills among children, which could potentially mediate the favorable outcomes observed in prior studies. Our preliminary analysis, conducted using nationally-representative survey data, indicates that females exhibit higher socio-emotional skills, particularly in the domain of prosocial behavior, in comparison to their male counterparts. However, no significant gender difference in prosocial behavior was detected among teachers. This finding provides some evidence that males tend to self-select into the teaching profession based on their socio-emotional aptitudes. Relatedly, if teachers serve as role models to children, then it is expected that the socio-emotional skills of the children

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[2]Although Gong et al. (2018) study non-cognitive outcomes, they focus on mental status and social adaption as opposed to non-cognitive skills.

are influenced by teachers with this effect potentially being more salient among male pupils relative to their female counterparts. Furthermore, students' level of engagement and enjoyment of coursework may differ depending on the gender of their teachers, given that students may perceive their teachers as role models. Students who share the same gender with their teacher may be inclined to derive greater pleasure from their academic pursuits, potentially translating into higher effort, which in return affect human capital accumulation. Additionally, parents may adjust their investment in their children, based on their perception of teachers as role models or their beliefs about teacher effectiveness, considering observable characteristics.

We test all the hypotheses described above by using the data from Millennium Cohort Study, a nationally representative cohort study that follows children born in 2000/1 in the UK and focus on early- to mid-childhood education. Our data source follows the children of the study from when they were 9 months old till their adulthood and collects data from the children either when they start a new educational level or when they finish it. Depending on the age of the cohort member, the survey collects data from cohort members, their parents and their teachers. We focus on children in England and use data from age 7 and 11 as these are the ages where children were exposed to the same teacher throughout the year and when we have data from the teachers. We derive children's socio-emotional skills using the Strengths and Difficulties Questionnaire (Goodman, 1997) that was implemented as part of the survey to the parents of the children. We also derive parental investment measures first for all the activities, then separately for education and recreation activities and use data from child survey on how much they enjoy school and their courses. We link this unusually detailed survey data from the household survey to the teacher survey that was implemented to the teachers of all the children in the study. The rich data allows us to study the effect of teacher gender on students socio-emotional skills development in early years and some of the possible mechanisms underlying such relationship.

One of the main issues when studying child development is the problem of omitted variable bias. Despite the availability of rich survey data that enables us to control for multiple family, child, and school-related variables, such measures may prove inadequate in addressing unobservable variables such as personal and

parental characteristics that could exert a significant influence on our outcome variables. In order to control for the unobservable characteristics (and to account for endogeneity) and to derive the causal effect of teacher gender on children's socio-emotional skills, we make use of the longitudinal structure of the data. Specifically, we employ a within-individual fixed effects model by utilizing two data points corresponding to each cohort member at ages 7 and 11. This approach allows us to control for unobserved factors that remain constant over time, enabling us to derive a more reliable estimation of the effect of teacher gender on the outcome variable of interest. In order to obtain causal estimates of the effect of teacher gender, we need it to be randomly allocated. Specifically, students' exposure to male teachers should exhibit no correlation with individual-level characteristics that serve as predictors of their skill development. Such a condition is necessary to ensure that any observed differences in outcomes can be attributed solely to the gender of the teacher and not to confounding variables that may be correlated with both the teacher's gender and the outcome of interest. Our findings indicate that students' exposure to male teachers exhibits no correlation with their personal characteristics, thereby mitigating concerns regarding "selection bias" in terms of observable attributes. This evidence supports the validity of our estimation approach and reinforces the notion that any observed differences in outcomes can be attributed to the gender of the teacher rather than to student-level characteristics.

Our results show that male teachers are important for some domains of students' socio-emotional development. We find that teacher gender does not have any effect on students' internal and external socio-emotional skills. The null results hold for both male and female students. When it comes to prosociality, however, we find teacher gender to be an important factor. When we study the raw results, we find that students who have a male teacher have 7.4% of the standard deviation higher prosociality scores than those with female teachers. Adding teacher- and school-level controls does not diminish the results but increases the effect size to 11.4% of the standard deviation. These results are statistically significant at 5% level and insensitive to the different controls that we include. In line with the literature, we study whether there is a possible representation mechanism and analyze the effects separately for male and female students and find evidence for

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representation effect: the effect is entirely driven by the male students of whom the effect is 14.6% of the standard deviation. The result is also in line with the role model hypothesis as our additional analysis shows that male teachers are positively selected into the profession in terms of their socio-emotional skills. This may be one of the reasons why the male students benefit from having a male teacher as their teachers are statistically different than the other male role models that they might have outside of the classroom.

The rich data that we use allows us to identify some of the possible mechanisms underlying the positive effect of exposure to male teachers. Specifically, we examine how parents respond to their children having a male teacher by analyzing parental investments. To this end, we assess total investments made by parents and distinguish between educational and recreational activities. Our findings reveal that exposure to male teachers does not exert a significant effect on overall parental investments in children. However, we observe a notable increase in educational investments made by parents of female students when their children are exposed to a male teacher. Specifically, the effect size amounts to 15.8% of the standard deviation, indicating that the impact of male teachers on parental investments in female students is substantial. This effect may be attributed to parents' desire to compensate for the perceived lack of investment in their daughters' education, which they believe to be a consequence of their teacher's gender. Our analysis also reveals that exposure to a male teacher enhances students' enjoyment of their primary coursework and of school in general. Consistent with the findings on socio-emotional skills, we observe that the effects are more pronounced among male students. This results supports the hypothesis that improved enjoyment of academic pursuits may constitute a key mechanism through which teachers enhance various aspects of students' academic and behavioral outcomes, as it may positively impact both socio-emotional skill development and academic achievement.

Our main contribution relates to the literature on representation. There is a large but still growing literature on how demographic representation, both in terms of gender and ethnicity, matters for student outcomes. The literature mainly focuses on the short (Dee, 2004, 2005, 2007; Winters *et al.*, 2013; Antecol *et al.*, 2015) and long-term academic outcomes (Carrell *et al.*, 2010; Fairlie *et al.*, 2014;

Lusher *et al.*, 2018), student behavior at school (Lindsay & Hart, 2017; Holt & Gershenson, 2019), teacher expectations (Ehrenberg *et al.*, 1995; Gershenson *et al.*, 2016; Egalite & Kisida, 2018) and labor market outcomes (Kofoed *et al.*, 2019; Holford & Sen, 2022). We extend this literature by providing evidence that teachers also affect students' personality where representation and being a role model can play a larger role. In fact, our results provide evidence that the effects found in the previous studies might be due to the changes in students' personality as there is evidence that students' socio-emotional skills are important for their academic outcomes (Sorrenti *et al.*, 2020).

We extend the literature on representation by providing evidence for the mechanisms of how teachers can affect many outcomes of the students as well. Our results show that teachers might affect the academic and behavioral outcomes of the students by improving their socio-emotional skills and their enjoyment from their courses and school in general. It is possible that improved socio-emotional skills might lead to lower behavioral problems such as missing school, in fact there is evidence that maternal socio-emotional skills improves children's socio-emotional skills and this leads to lower unauthorized absences Morando *et al.* (2022). Similarly, enjoyment from the courses might lead to higher levels of effort being exerted by students Richter *et al.* (2016) and improve their outcomes (Morris *et al.*, 2021). Since there is evidence that effort causally affects academic outcomes Gneezy *et al.* (2019), this might improve the academic outcomes of the students.

Our last contribution relates to the study sample. To our best knowledge, most of the previous studies use data from either an experiment or from administrative data from a sub-sample with the exception of Holford & Sen (2022) who use administrative data across all UK universities. While the findings of Holford & Sen (2022) are important, they study the effect of representation among academics and they study the effect of this representation on academic and labor market outcomes. By studying the effects of teacher gender on students using a nationally representative study and focusing on socio-emotional skills, we show that the results found in the previous studies can also be generalized for the population.

2 Education System in England

The English system of education is divided into educational levels called "Key Stage". Students start their education when they are 5 and they need to stay in education until 18. The first 4 Key Stages consist of compulsory formal education while the last Key Stage consists of further academic education or vocational education where apprentices learn a trade. Students can leave formal education when they turn 16. So, in practice, students need to be in school until they are 16 but they need to be in education until they are 18. Key Stage 1 is for ages 5-7, Key Stage 2 is for ages 8-11, Key Stage 3 is for ages 12-14, Key Stage 4 is for ages 15-16 and Key Stage 5 is for ages 17-18. Key Stages 1 and 2 are considered primary school Key Stage 3 and 4 are called secondary school. At the end of each key stage, the students are assessed either by their teacher (Key Stage 1) or by national tests (the rest of the Key Stages).

In the first two Key Stages, students take their courses with the same peers and same teachers throughout the year. While the teachers might change from one year to another, the concept of subject-teacher does not exist. This system allows students to be exposed to the same teacher throughout the year. Parents cannot choose which teacher their student will be allocated to as this is randomly done by the schools. On the other hand, parents do choose the school that their children go. In England, there is a mechanism where parents are allowed to make 6 school choices for their school-age children and based on their choices (and other parents' choices), children are allocated to a school. Main criteria used by the local authorities for this placement is the distance between the schools and child's home. However, the schools that the children are allocated does not have to be one of the choices that the parents make. If the schools are over-subscribed, children might be allocated to a school different than the one that their parents want. While parents can make strategic choices or move to a different place to be closer to a school, and thus effectively choose the school, they do not have any control over which teacher they are exposed to once the child is in school as this is something decided by the school administration and is random.

Parents can choose to send their children to a state-funded or a private school. While both types of schools need to follow the same national curriculum, there can

be differences at school level characteristics such as how the schools are dealing with behavior management, how many students are in a class or the extra-curricular activities. There are also state-funded academies which are autonomous in their administration but due to being state-funded there are some rules that are not applicable for private school but to state schools which they need to follow so while the students do not pay any tuition fees for academies, they might be more likely to be exposed to different school-level factors. There is also no selection in the primary setting so the schools are all comprehensive (non-elite) as opposed to the secondary level that has some selective schools.

3 Data and Descriptive Statistics

3.1 Data and Sample

We use data from Millennium Cohort Study (MCS). MCS is a cohort study that follows the lives of over 19,000 young people in the UK from their birth until their early adulthood. The survey is nationally representative and includes weights so that researchers can weight the results to make generalizations about the population of the UK or of devolved nations. The study started collecting data when the young people were 9 months and the most current data has been collected when the young people were 21. The MCS does not follow the young people every year. It collects data when there is an important change in the young people's lives. MCS data is available when the young people were 9-months, 3, 5, 7, 11, 14 and 17 year old and this corresponds to the ages when the young people study for either the first or the last year of an educational level.

For most of the survey waves, both the young child (or children if there are more than one cohort member at home) and their parents were interviewed. While data from each wave includes different information about the children and the parents, the main focus is on child development so the information collected mainly includes about the factors that may affect child development. In terms of parental interviews, the dataset includes both parental figures in the household. Additionally, at age 5, 7 and 11, teachers of the children were also interviewed. While age 7 and 11 surveys have been sent to the teachers of all survey participants,

teacher survey data when the children were 5 was only collected from teachers in Scotland, Wales and Northern Ireland.

The teacher surveys asked the teachers about the school and classroom that they are teaching, about their students as well as their own demographic and academic information. In this paper, we make use of the data from teachers survey on the school and classroom and on their own demographic information, mainly education level and gender. We also make use of data from parental interviews to derive the type of school that the children go, especially in terms of whether the school is mixed-sex or single-sex.[3] Additionally, we use data from cohort member survey. Alongside parent and teacher surveys at age 7 and 11 waves, the study children were also asked to complete a short self-completion survey starting with age 7 wave. This survey asked questions about their general life, friends and their school such as how much they enjoy specific components of school and of their class.

We restrict our sample to include only those who are studying in England. The main reason for this restriction is even though the age 7 and 11 survey collected data from all four devolved nations of the UK (England, Scotland, Wales and Northern Ireland), there are some differences in the education system across devolved nations. For example, there is no national curriculum in Scotland. The ministers set the priorities for education. Similarly, in Wales, the schools are more autonomous than the ones in England. In Northern Ireland, on the other hand, there is a selective schooling system. Due to these differences, we focus on young people that take their education in England.[4] This restricts us to use data from teacher surveys that were implemented when the young people were 7 and 11, ie. when they start and finish Key Stage 2, the last educational level of primary schooling. We also restrict our sample to singletons as having a twin might have different resource allocation in the family and this might be important for students' socio-emotional development.

Additionally, we use data from Understanding Society to study the differences in socio-emotional skills. Understanding Society is a nationally-representative household level survey data. It is proceed by British Household Panel Survey

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[3]Less than 1% of the students go to same-sex schools in our baseline wave.

[4]England is also the biggest sample of MCS as per the population of UK.

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(BHPS) which was similar in context but was implemented to fewer number of households in the UK. Understanding Society has been implemented to over 40000 households including 8000 households from the BHPS. We use data from Wave 10 of the Understanding Society as this is the most current wave where we have information about the individual's socio-emotional skills. Using information about altruistic behavior, we derive adult's prosocial skills as one of the domains of socio-emotional skills and study the gender differences in prosociality across the population and then among teachers.

3.2 Outcomes and Descriptive Statistics

Our main outcome variables are socio-emotional skills. In order to measure socio-emotional skills, we use data from the Strengths and Difficulties questionnaire. This is a questionnaire that is first proposed by Goodman (1997) and has since been used in several studies in Psychology and Education but also in Economics such as Morando *et al.* (2022) and Kosse *et al.* (2020). The questionnaire is targeted at parents and teachers of children aged 3-17 and aims to capture the 5 psychological attributes. The 5 sub-scales are: Emotional Symptoms, Conduct Problems, Hyperactivity/Inattention, Peer Relationship Problems and Prosocial Behavior. While the first four sub-scales focus on the problems, the last one focuses on a positive attribute. The sub-scales can be summed into three groups: Internalizing problems (emotional and peer symptoms), externalizing problems (conduct and hyperactivity symptoms) and prosociality. In this paper, we use these groups and focus on internalizing, externalizing and prosociality. We re-code internalizing and externalizing so that all the socio-emotional skills are positively coded, ie. higher score representing a better outcome.

Our second set of outcome is the parental investments. Here, we make use of the unusually detailed data on parental investments. We first study all the parental investments together and then we follow the literature and separate them into educational parental activities and recreational parental activities to differentiate these investments as they would have different impact on children's academic, cognitive, non-cognitive and socio-emotional outcomes (Bono *et al.*, 2016). As we have several measures of parental investments, rather than analyzing them

separately, we create an index for all investments, educational and recreational parental investments following the approach proposed by Anderson (2008) which creates an index with mean 0 and standard deviation 1 while also giving less weights to the variables that are highly correlated.[5]

Finally, we use data from the cohort member survey and derive enjoyment from school and from courses. Here, we have enjoyment data for three main courses: English, Mathematics and Science. As in the case of parental investments, we create an index following Anderson (2008) that captures enjoyment from all of these courses as enjoyment from one course might be highly correlated with the other ones.[6] Although we create an index, we also study the effect of teachers on enjoyment from each of these courses in the Appendix. For the enjoyment from school variable, as this is a single variable with categorical answers, we create a dummy variable for "Liking school a lot".

First, we present the distribution of our socio-emotional skills, parental investments and enjoyment from classes/school measures by teacher gender in Figure 1 to Figure 3 by focusing on our baseline, ie. data from age 7. These graphs present the kernel density of each of our measures. As the figures shows, in most cases the lines overlaps each other several times. What is interesting, and important in these graphs, is that when it comes to prosociality, we see that students whose teachers are female always outperform those whose teachers are male. This is especially important at the right of the distribution where the difference between those with a male and a female teacher widens. These graphs suggest that since male students have lower levels of socio-emotional skills in some of our measures, they might be the ones who can benefit from representation in the classroom as they have more room-to-improve. Similarly, when it comes to parental investments, although we do not see much differences when it comes to all investments and recreational investments, there are some striking differences at the bottom of the distribution. The graph shows that if students have female teachers, then their parents put less emphasis on their educational investments which might mean that when the students are exposed to male teachers, these parents might

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[5]Thus, when we study the correlation between independent and dependent variables or the causal effect of teacher gender on our outcome variables, the coefficients should be interpreted in standard deviation terms.

[6]This is especially important for the correlation between Mathematics and Science courses.

be more likely to increase their educational investments in their children. When it comes to enjoyment from courses and from the school in general, we see that there is more variation for female teachers than for male teachers and the lines in the density graphs overlaps each other several times.

In Table 1, we present gender, socio-economic and ethnic differences in socio-emotional skills, parental investments and enjoyment from courses and school. In this table, again, we use data from only our *baseline* wave. The table shows striking gender and socio-economic differences in socio-emotional skills as well as as ethnic differences in parental investments. The table shows that on average, male students have 5.1, 31 and 33.3% of the standard deviation lower levels of socio-emotional skills in internal, external and prosocial domains of the socio-emotional skills. On the other hand, those coming from high SES backgrounds have better socio-emotional skills by 31.5, 32.1 and 13.5% of the standard variation than students coming from a low SES background. When we look at the parental investments, we see a similar picture for gender. Parents of male students generally spend less time with their children than the parents of female students which is consistent with the literature (Baker & Milligan, 2016). These differences come from recreational parental investments and there is no gender difference in educational parental investments. While we do not see much ethnic difference in socio-emotional skills, we see that there is a very big gap in parental investments. Overall, ethnic minority parents spend less time with their children. These negative effects are driven by recreational parental investments and on the other hand, ethnic minority parents spend a lot more time with their children doing educational parental activities; and the difference is 32.9% of the standard deviation. Similar patterns arise in enjoyment from courses and school: male students enjoy less from both factors but minority students enjoy their courses and school more. When it comes to socio-economic differences, we see that high SES students enjoy their courses more than those from the low SES backgrounds. These gender, socio-economic and ethnic differences are especially important because they follow the same pattern as the inequalities in educational attainment with the exception of ethnic inequalities in enjoyment from courses and school. As we do know that socio-emotional skills, parenting and enjoyment are important for the students' early and later life outcomes, it is crucial that we study how teachers might mitigate (or exaggerate)

these inequalities.

While these differences are important, they might also be correlated with the teacher gender. We present the descriptive statistics for baseline measure of socio-emotional skills, parental investments and enjoyment from courses/school in Table 2. We first present the results for the whole sample, then for those whose teacher gender is known (column 2) and then by teacher gender. In the last column, we show the p-values for the differences in these skills, parental investments and enjoyment from courses/school at baseline by teacher gender.[7] The table shows that when it comes to socio-emotional skills, students with a female teachers, on average, have lower socio-emotional skills. However, the last column shows that none of these differences are statistically significant. Similarly, when we look at the parental investments, we see that parents whose children have a female teacher, on average, spend less time with their children. Although these differences are not statistically significant for all investments and recreation category, we see that the difference in educational parental investments is statistically significant at 5% level of significance. Additionally, we see that students are more likely to enjoy school when they are exposed to male teachers than female teachers and similar to the case of educational investments, this difference is statistically significant at 5% level of significance. Whether these differences are in fact due to the difference in teacher gender is a question that we study in the next sections.

4   Empirical Strategy

An important issue when it comes to research in the context of human capital or skills development is the omitted variable bias. While researchers can control for several factors that might be important determinants in the human capital development function, there might still be relevant inputs that are not accounted for, such as genetic endowments and innate ability. If these omitted variables are correlated with the outcome and the dependent variable of interest, the estimates of the effect of the latter on the former will be biased. To deal with such issue, we make use of the longitudinal feature of MCS and estimate the following equation:

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[7]In the table, we only show the p-value for the differences between those with a male and female teachers.

$$y_{it} = \beta_0 + \beta_1 TGender_{it} + \beta_2\gamma_{ct} + \beta_3\omega_{st} + u_i \qquad (1)$$

where y_i is one of our outcome variables, $TGender$ is a dummy that takes the value of 1 if the teacher is a male and 0 otherwise. This is our main variable of interest. γ_c represents a rich set of classroom level characteristics such as class size, whether the classroom is mixed in terms of years, total number of special education needs students, of excluded students, of English as a second language students and of disruptive peers. Controlling for classroom characteristics improves precision in estimating the impact of teacher's gender as students are exposed to their teacher within the classroom environment. Furthermore, ω_s indicates whether the school is single- or mixed-sex, and u_i is the error term unknown to the econometrician.

We exploit the panel data settings of the MCS and estimate the above equation with an individual level fixed-effects model where we assume that the error term will be fixed for each individual. Our main assumption here is that the students' unobservable factors that affect their socio-emotional skills development will stay constant between age 7 and 11 and the changes in these characteristics will not affect both the variable of interest and the outcome variable. Similar fixed effect models have been largely used in several studies on education () and, specifically, for understanding the effect of instructors on students' outcomes (Fairlie *et al.*, 2014).

The main threat to our identification strategy in our settings would arise from the gender of the teacher not being randomly assigned to students. To test whether this is a plausible issue, we investigate whether students' characteristics that might affect their skills development are systematically and statistically significantly associated with exposure to a male teacher. If students' observable characteristics predict students' exposure to male teachers, then we would need to correct for this "selection". In order to see whether this is the case, we run the following empirical specification.

$$TGender_{it} = \alpha_0 + \alpha_1 X_{it} + \alpha_2 ParInp_{it} + \alpha_3\phi_{it} + \alpha_4\rho_{it} + \epsilon_{it} \qquad (2)$$

where X_i is personal characteristics such as student's gender, ethnicity and socio-economic status, ParInp is standardized measure of parental investments, ϕ_i is

birth and childcare fixed effects (birth weight, gestation, whether preterm, type of main childcare, and childcare hours) and ρ_i is a household level control (household OECD equivalized income).

5 Results

5.1 Validity of Identification: Exposure to Male Teacher

We test whether exposure to male teachers correlates to students' individual level factors. Since there is evidence that female, high-SES and White students outperform their male, low-SES and ethnic minority peers, it is essential to check that their exposure a male teacher is not correlated with such characteristics. If students' gender predicts the gender of their teacher, then this would result in under- or over-estimating the results: for example, if male students are more likely to be exposed to male teachers, and this has a positive effect on students' socio-emotional skills, then the estimated effect of having a male teacher on students skills will be upward biased.

In order to understand whether this is the case, we estimate the model specified in equation (2). We regress student level characteristics against the likelihood that their teacher is male. We present the results in Table 3. In increasing columns, we also include parental inputs as they are an important factor in human capital accumulation and other birth and childcare controls as well as household level controls to account for any correlation between children's demographic characteristics and these factors.

Our results show that personal characteristics, parental investments, birth and childcare factors or household level controls do not predict students' exposure to male teacher. All of the coefficients are close to 0 and none of them is statistically significant. In fact, when we study the joint significance of all the variables that enter into the regressions, we find that in most cases the p-values are even over 0.5 and in the lowest case, it is still insignificant. This provides that exposure to male teachers cannot be predicted by the student characteristics and that the results that we obtain from our estimation strategy are not biased due to this.

5.2   The Effect of Teacher Gender on Socio-Emotional Skills

Our main outcomes variables are socio-emotional skills. As we stated before, we re-code internalizing and externalizing scales so a higher score means less problems, ie. better socio-emotional skills. In Table 4 and Table 5, we present the result of our analysis on internal and external socio-emotional skills. In the first columns, we only include the teacher gender. In the second, we include teacher level controls such as their experience, experience at the same school and the type of degree they have, then in column three, we add class and school level characteristics into the first column, and in column four, we include our controls all together.[8]

Interestingly, the coefficient of teacher gender is positive for internalizing and negative for externalizing behaviors. Nevertheless, teacher gender does not have any statistically significant effect on students' internal and external dimensions of the socio-emotional skills. On the other hand, when it comes to external socio-emotional skills, we find that class size has a negative effect. 1 additional student in the classroom decreases students' external socio-emotional skills by 0.6% and 1 standard deviation increase in the class size (5 students) results in 3% lower external socio-emotional skills. The previous studies show that classroom size is an important factor in the students' academic outcomes (Angrist & Lavy, 1999). Our results provide some evidence on the mechanism of how classroom size matters for students' outcomes. Since there is evidence that socio-emotional skills are an important factor for early and late outcomes, it can be one of the channels of how additional students in the classroom affect other students' academic outcomes.

Then, we study the third dimension of our socio-emotional skill, prosociality. Table 6 follows the same structure of Table 4 and Table 5. Across all specifications, from column 1 to 4, teacher gender causally and positively affects students' prosocial development. In the most robust model, in Column 4, the results show that having a male teacher increases the students' prosociality by 11.4% of the standard variation. The effect of having a male teacher on prosociality is nearly 20 times larger than the effect of having one less student in the classroom on external dimension. This provides some evidence for policy-makers. If policy-makers would

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[8]Our results are not sensitive to the changes in the sample size, see Table ?? through Table ?? for the analysis on socio-emotional skills where we only include cohort members of which we have information about teacher characteristics beyond gender and school-level characteristics.

like to improve the socio-emotional outcomes of the students, it might be easier to hire more male teachers than to reduce the average number of students in a classroom, although we are aware that hiring male teachers are harder than hiring female teachers as per the current teacher labor force.

While the effect of teacher gender on the whole sample is important, it is possible for the effect to vary by the gender of the student. In fact, previous studies find that representation (or demographic match) in the classroom is important for the students' outcomes (Dee, 2004, 2005). The previous literature argues that this might be due to students seeing their teachers as role models. In the last two columns of Table 4 to Table 6, we study the effects separately by the gender of the cohort member. Our results show that effect of male teachers on students' prosociality comes entirely from male students. The effect of having a male teacher for male students is 14.6% of the standard deviation and it is statistically significant while the effect on the female students is 7.4% of the standard deviation but it is not significant. Although we cannot reject the null hypothesis that these two coefficients are same, the sample size being large enough provides evidence that the effects are driven by male students. This finding is consistent with the representation hypothesis that has widely been validated in the classroom literature.

An ideal additional check would be whether teachers' own socio-emotional skills transmit into students and whether this is related to the gender of the students and of the teachers. We know that, on average, boys present more issues in externalizing behavior and girls in internalizing behavior due to both biological and social reasons (see Schlack & Petermann (2013) and the literature therein). While evidence on gender heterogeneity in prosociality is less clear (Croson & Gneezy, 2009), it has been shown that prosociality in men and women can be affected by different factors (Espinosa & Kovářík, 2015). However, as our data does not contain information about teachers' socio-emotional skills, we are unable to do so directly. Yet, we use another data source, Understanding Society, which is another nationally representative survey in the UK and we study whether those in the teaching profession have higher prosocial skills and whether there is a gender angle in this.

We provide this analysis in Table A1. Here, we analyze teachers' altruistic

behavior. Although our measure from the students does not directly measure donation, altruism is one of the key elements of prosocial behavior and in fact it is one of the items that enter into students' prosociality measure calculations alongside other prosociality measures. In teachers, we focus on both the external and internal margin, ie. whether they donate and if so, how much. Our analysis shows that teachers, on average, have higher prosocial behavior than those who are not working as a teacher. Our results also show that there is a clear gender difference in prosociality, across the whole sample females have higher prosocial skills than males. We, then, focus on teachers and study the gender differences across those who are in the teaching profession. Our results show that as opposed to the general population, there is no gender difference in terms of prosociality among the teachers. Having found gender differences across the population but no difference among teachers show that among males, there is a selection into teaching among males based on their prosocial skills.

Our results suggests that male students might see their male teachers as role models or that gender homophily promotes better interpersonal relationship between male teacher and male students. This might facilitate students' development or the teacher-to-student transmission of socio-emotional skills. As teaching is a profession where understanding other individuals' needs and preferences, a dimension of prosociality, plays an important role, it is not surprising that prosociality is the socio-emotional skill that is mostly affected. Our additional analysis suggest that while male students might have male role models outside of the classroom, these role models might have lower prosocial skills than the role models that the students have in the classroom and that might be why the effect of male teachers are only applicable to the male students as female students might have role models outside of classroom that already have high levels of prosociality.

5.3 The Effect of Teacher Gender on Parental Investments and Enjoyment from School

We also study how parents respond to their children having a male teacher. As we discussed in the context of the education system in England, parents cannot choose the teacher that will teach their children. Even though they can choose the

set of possible schools through the choice of the area of residence, the teacher that their child will be exposed to will be close to random.

The inability to select the teacher might change the way the parents behave. For example, if parents have beliefs about a teachers' effectiveness when it comes to human capital and skills development based on their gender, the gender of the teacher that their child has might affect their investments. For example, if parents believe that female teachers are more represented in the teaching force because they are more effective, having a male teacher might increase their investments in their child, especially in educational activities because they might want to substitute what (parents think) they are missing by having a male rather than a female teacher.

We present the result of our analysis on how parents react to their children having a male teacher in Table 7. Parents do not respond to their child having a male teacher by changing their parental investments. Then, we look at specific type of parental investments: We divide our parental investments variables into two groups: i) Educational and ii) Recreational parental investments. This is important because while parents might not respond to their child having a male teacher in terms of recreational activities, they might alter their educational investments to affect child's academic attainment. Table 7 shows that parents do not change their investments as a result of having a male teacher in either domains, when we look at the whole sample. However, when we look at the results separately by the gender of the children, we see that when girls have a male teacher, parents increase their educational parental investments. This is an interesting finding because there is evidence that when it comes to educational parental investments, parents already invest more in girls (Baker & Milligan, 2016). Yet, parents might increase educational investments in girls because they might want to substitute for the role model that their daughter is missing in class. In fact there is evidence that parents see some of the school level characteristics as a substitute for their own investments Greaves *et al.* (2019). If teachers' gender is one of the characteristics that the parents think is important, then they might respond to teachers' gender by increasing (or decreasing) their investments.

Finally, we study whether students enjoy the classes and the school in general more when they are assigned to a male teacher. Our results in Table 7 show

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that when assigned to a male teacher, students enjoy their courses and the school more than if they were assigned to a female teacher. The effect sizes are quite high, male teachers improve students' enjoyment from the courses by 15.1% and from the school by 7.6% of the standard deviation. These shows that the effect of the teacher gender spills out of the classroom and is important for the students' enjoyment from the school in general as well. When we look at which students are more affected from this we find that the effects are stronger for male students. This is consistent throughout all the other contexts that we study in the paper. Similar to the results on parental investments, we cannot reject the null hypothesis that the effects on males and females are not statistically different than each other. We also study the effect of teachers on specific courses: English, Mathematics and Science in Table A8. Our results show that the effect of male teachers come from Mathematics and Science and there is no effect on enjoyment in English courses; the estimates by gender are not precisely estimated.

Our results provide significant and positive effects of male teachers on certain students' socio-emotional skills and their enjoyment from school. The results are consistent throughout the paper, the effects are always higher for boys than girls. In line with the human capital accumulation theory and previous literature, our results provide some evidence on the effects of representation on students' socio-emotional skills but also on the academic outcomes which is found in the literature. If representation improves students' enjoyment from the school and from the courses, students might exert more effort which, in turn, improves students' human capital accumulation. In fact, there is evidence that effort matters for the academic outcomes (Gneezy *et al.*, 2019).

6   Additional Analysis

Changes in Teacher Gender

As we are studying the effect of teachers' gender on socio-emotional skills and parental investments, we also study whether changes in the teacher gender between the beginning and the end Key Stages 2 (age 7 and 11) have an effect on the parental investments. Here, we change our variable of interest from the teacher

gender to changes in teacher gender by coding changes from one gender to another so that we can have four categories: female to male teacher, male to male teacher, male to female teacher, and female to female teacher. Although the analysis would not give us the causal effect, it is important to study how these changes affect students' outcomes. When it comes to studying the changes in teacher gender, however, we need to keep in mind that this analysis uses cross-sectional data and it is not possible to implement the within-individual fixed effects estimation here as we do not have enough time periods to study this. We would need data from at least three time periods so that we could derive the changes between two periods twice. As we have only two periods where we have teacher information, this is something we cannot do with the dataset that we use.

Table A9 and Table A10 present the results of the additionally analysis where we separate the changes in teacher gender for socio-emotional skills, and parental investments and enjoyment from school, respectively. Our results show that changes in the teacher gender from the beginning to the end of Key Stage 2 do not affect the students' socio-emotional skills, in line with the results of the main analysis. When we study the parental investments, on the other hand, we see that if a student has a female teacher in the beginning of Key Stage 2 but has a male teacher in the end of Key Stage 2, the parents are more likely to increase their educational parental investment into their children during the end of Key Stage 2 but only if the child is a female, although this is weakly statistically significant. In terms of recreational parental investments, we see that when the students have male teachers at the beginning and the end of Key Stage 2, then the parents increase their recreational parental investments which is statistically significant and this effect is 27.9% of the standard deviation higher than if a student has female teachers in both years. Heterogeneity results show that this effect is only significant for girls but the standard errors increase drastically which might be one of the reasons why we do not see any effect on boys.

Heterogeneity by Students' Characteristics

Next, we study whether the effect of the teachers on students might change by students' ethnicity and socio-economic characteristics. We present these results in

through .

Although there does not seem to be a pattern in the analysis, some striking results emerge. While we do not see any effect on the internal dimension of socio-emotional skills for the overall student sample, we see that exposure to male teachers reduces minority students' internal socio-emotional skills by 23.9%. Although we cannot study whether this is due to White male teachers or teachers from a different minority group (for example a Black student might not see an Asian teacher as their role model), this finding is important because this is the only negative effect of male teachers on students' socio-emotional skills. The current statistics on teacher workforce shows that while about 30% of the female teaching workforce belong to an ethnic minority group, this is only 11% for the male teachers. This might be one of the reasons why there is this negative effect on the minority students if White British teachers do not serve as a role model for minority students. When we look at prosociality in Table A13, we see that the positive effects exist both for high and low SES students but the effect on high SES students are stronger although the difference is not statistically significant. We also see that the positive effects are driven by White students.

Then, we study parental investments. Although we do not find any effects on the general sample for educational parental investments, we see that similar to the increased investment for females that we have seen in Table A15, there is an increased investment for students with high SES parents. If these parents have stronger beliefs that female teachers are more effective than the male teacher, they might be more likely to invest more in their children education. This belief might be shared by those from the low SES background as well[9] but due to constraints, they might not be able to act on it and increase their parental investments to the same extent of high SES parents can.

Finally, we study enjoyment from courses and school in general by personal characteristics in Table A17 and Table A18. Our results show that the positive effects of male teacher are applicable to both high and low SES students in both context. Yet, when we look at ethnic differences in Table A17, we see that the effect is only significant for White students and the dramatic increase in the standard errors for minority students makes the effect insignificant, even though

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[9]We do not have information about parental beliefs about the effectiveness of teacher.

the coefficients are similar for White and minority students. In terms of students' likelihood of liking school, however, the coefficients are different for White and minority students both in terms of magnitude and in terms of the direction. This shows that male teachers might be important mainly for White students although we are aware that this might be mainly driven by the under-representation of male minority teachers in the teaching profession.

7 Conclusion

There are consistent gaps found in the literature when it comes to students' (young and adult) academic, cognitive and non-cognitive outcomes. The gender gap in academic outcomes and cognitive and non-cognitive skills, which favors females, received attention from researchers in both Economics and Education. One of the hypotheses that has been studied widely in the literature is representation. Previous studies show that when students are taught by teachers or instructors who share the same gender or ethnicity with the student, they perform better in their courses (Dee, 2004). These effects also persist over time, so the teachers affect students' later life outcomes (Gershenson *et al.*, 2018). The findings of the literature goes beyond the academic outcomes (Holford & Sen, 2022), yet the effect of teachers on the students' non-cognitive skills are hardly studied, possibly due to lack of data.

This provides a possible reason why girls outperform boys in their outcomes. Most of the teachers are females. If female students see their teachers as their role models and this improves their outcomes, then it is expected that girls outperform boys. This is especially important in the UK where the teaching workforce consists of 75.5% female teachers. Yet, we do not know in what ways the teachers improve students' outcomes. Is this via improved behavioral outcomes or via improved cognitive or non-cognitive skills? In this paper, we study one of the possible channels of this representation effects on the students' outcomes by focusing on students' socio-emotional skills.

Using longitudinal data and exploiting the panel data structure of Millennium Cohort Study, a nationally representative cohort study from the UK, we show that teacher gender is important for students' socio-emotional skills development,

especially for their prosocial skills. Our results show that male teachers improve students' prosocial skills and this effect is entirely driven by male students which might provide some evidence for the widely studied representation in the classroom hypothesis. When it comes to parental responses, we show that parents of female students increase their educational investments in their children and this is not driven by the changes between educational levels but more about actually having a male teacher at a given educational level. Additionally, our results show that when male students are taught by male teachers, they are more likely to enjoy their courses and their school in general.

Our results provide some important policy suggestions. There is an ongoing debate across the world about teacher supply. There is a high turnover in the teaching profession, possibly due to low wages for the high effort that the profession requires. There is also a specific effort by the governments to improve the ethnic and gender diversity of the profession. For example in the UK alone, the country where our data comes from, over 75.5% and 85.1% of the teaching workforce are female and White even though the population statistics shows that 50.1% and 78.8% of the population is female and White. This shows that the teaching profession has a diversity problem. Due to these statistics, the government is actively trying to recruit male and minority individuals into the teaching force. Yet, the current evidence on the effect of representation in the classroom does not go beyond academic and some other outcomes related to the achievements of the students such as labor market outcomes.

Our results shows that the effect of the representation is far beyond the classroom and labor market. We show that representation also has an effect on the students' personality. This show that the effect of being represented in the classroom might affect not only the academic and labor market outcomes of the individuals but it is also possible for their long-term outcomes to be affected. Considering personality of the individuals affect (or predicts) several early and later life outcomes, recruiting male teachers might not only improve students' academic and other early outcomes but might also mitigate the gender gap over the lifetime of the individuals.

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Figures

Figure 1: Socio-Emotional Skills at Baseline
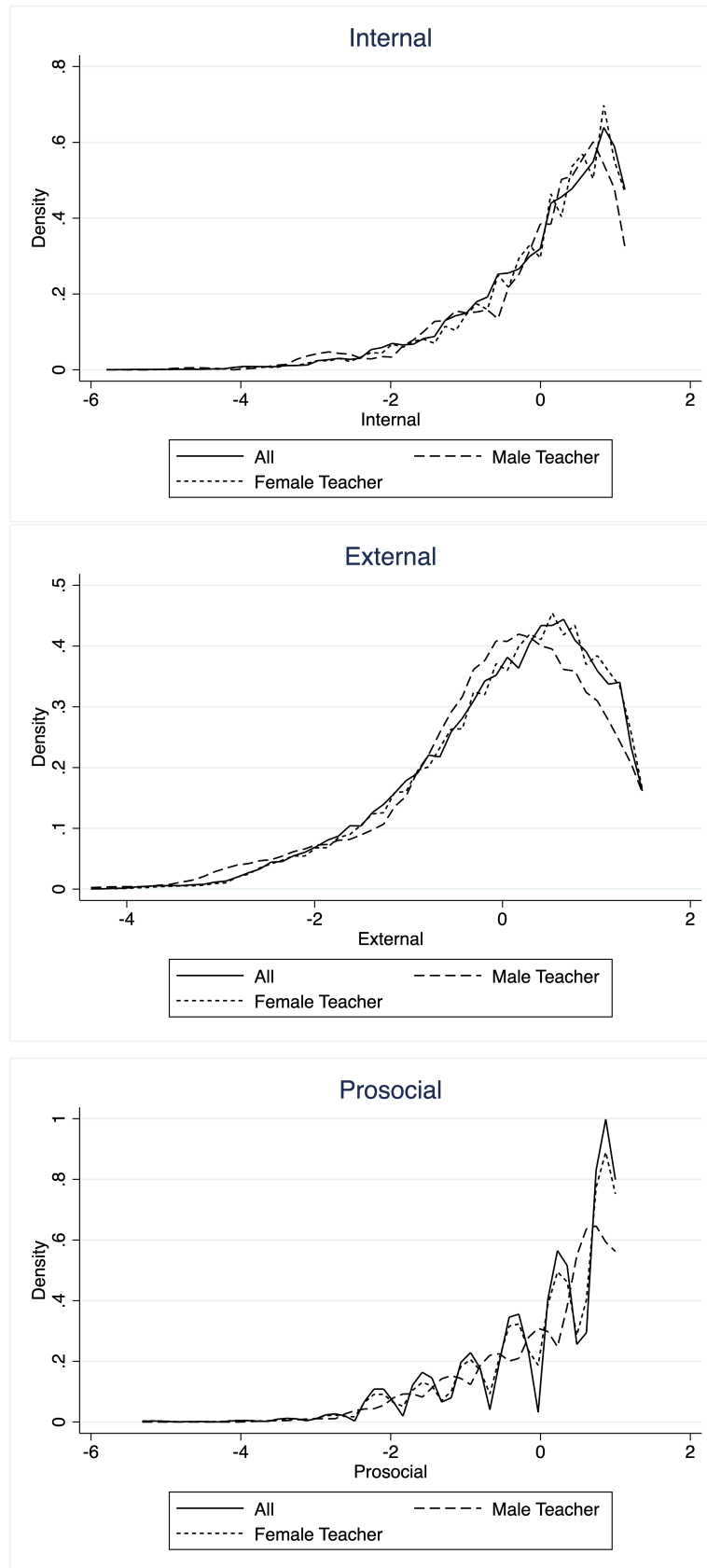
Notes: All variables are standardized with mean 0 and standard deviation 1. Baseline wave is when the cohort members are 7 years old.

Figure 2: Parental Investments at Baseline
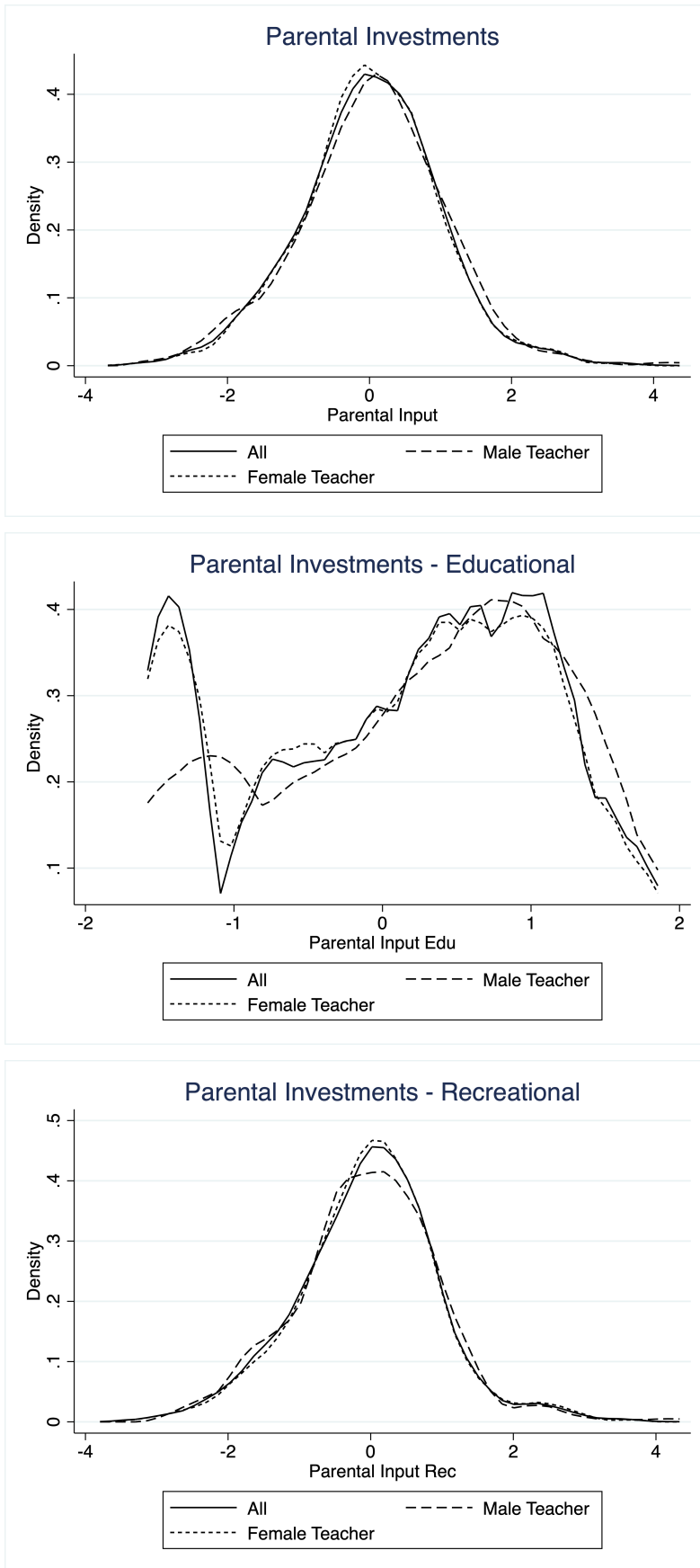
Notes: All variables are standardized with mean 0 and standard deviation 1. Baseline wave is when the cohort members are 7 years old.

Figure 3: Enjoyment from School at Baseline
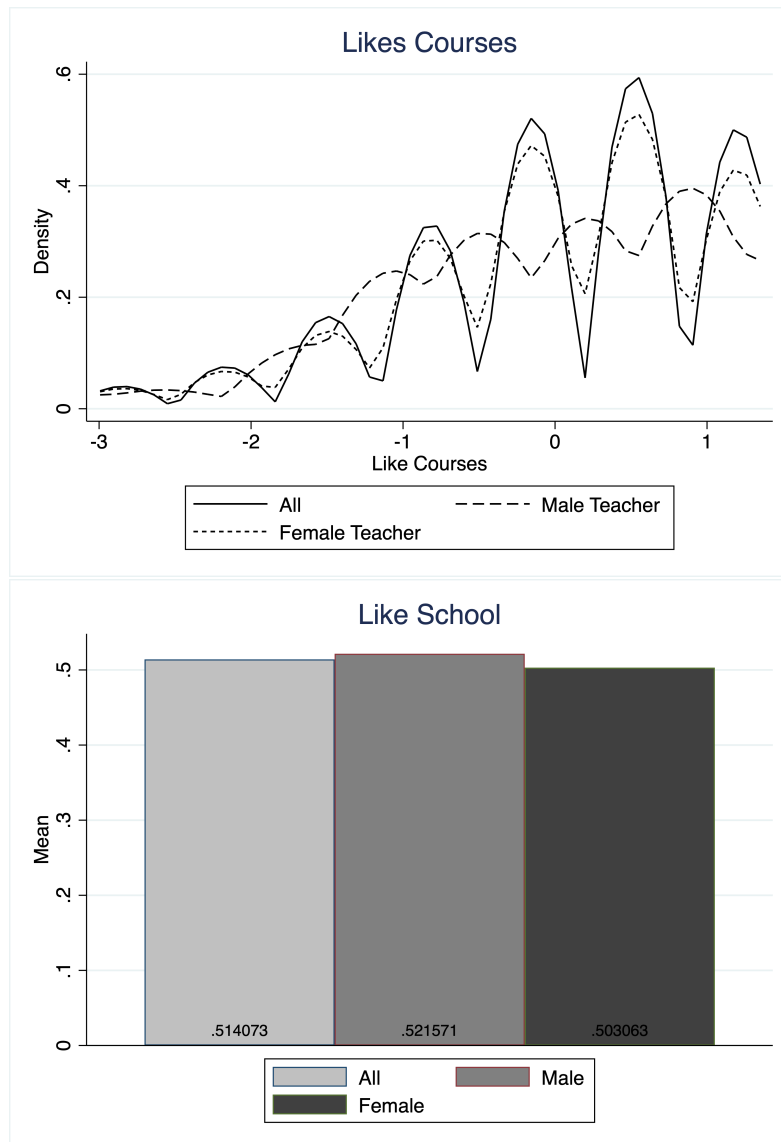
Notes: Like course variable is standardized with mean 0 and standard deviation 1. Likes School is a dummy variable. Baseline wave is when the cohort members are 7 years old.

Tables

Table 1: Baseline Differences

	Socio-Emotional Skills			Parental Involvment			Likes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Internal	External	Prosocial	All	Educational	Recreational	Courses	School
Male	-0.051**	-0.319***	-0.333***	-0.059**	-0.030	-0.058**	-0.190***	-0.192***
	(0.022)	(0.022)	(0.022)	(0.023)	(0.022)	(0.023)	(0.023)	(0.011)
Ethnic Minority	-0.272***	-0.011	-0.042	-0.161***	0.329***	-0.284***	0.253***	0.127***
	(0.029)	(0.027)	(0.029)	(0.030)	(0.026)	(0.030)	(0.027)	(0.014)
High SES	0.315***	0.321***	0.135***	0.020	-0.035	-0.000	0.080***	-0.016
	(0.022)	(0.023)	(0.023)	(0.024)	(0.024)	(0.024)	(0.024)	(0.012)
Constant	-0.011	0.068***	0.138***	0.068***	0.046**	0.055***	0.036*	0.613***
	(0.019)	(0.019)	(0.018)	(0.019)	(0.019)	(0.019)	(0.019)	(0.010)
Observations	7759	7756	7802	7609	7995	7614	7346	7464

Notes: All outcome variables except "likes school" are standardized with mean 0 and standard deviation 1. "Likes school" is a dummy variable. The table uses data from the baseline, wave 4, ie. when the students were aged 7. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table 2: Descriptive Statistics

| | | | Teacher Gender | | | |
Variables	All	All	Unknown	Female	Male	p-value
Socio-Emotional Skills						
Internal	0.009	0.053	-0.048	0.056	0.002	0.383
	0.994	0.978	1.012	0.975	1.033	
External	0.008	0.035	-0.027	0.041	-0.047	0.159
	0.995	0.983	1.010	0.979	1.032	
Prosocial	0.004	0.023	-0.020	0.017	0.107	0.150
	1.000	0.994	1.008	0.998	0.931	
Parental Inputs						
All	0.009	0.013	0.004	0.011	0.045	0.593
	1.000	0.985	1.018	0.982	1.028	
Educational	0.093	0.063	0.130	0.055	0.189	0.027
	0.972	0.975	0.969	0.974	0.978	
Recreations	-0.037	-0.022	-0.056	-0.021	-0.043	0.727
	1.004	0.989	1.022	0.988	1.012	
Likes						
Courses	0.020	0.009	0.036	0.010	-0.015	0.699
	0.985	0.982	0.988	0.979	1.032	
School	0.540	0.530	0.552	0.525	0.603	0.015
	0.498	0.499	0.497	0.499	0.490	
N	7,802	4,402	3,400	4,134	268	

Notes: All variables except "likes school" are standardized with mean 0 and standard deviation 1. "Likes school" is a dummy variable. First column shows the descriptive statistics for the whole sample while column 2 shows the descriptive statistics for all students whose teachers' gender is known. The last column shows the p-value from the differences in skills and parental investments between students whose teachers are male and those whose teachers are male. The p-value is obtained from two-sample t-test.

Table 3: Exposure to Male Teachers

	Exposure to Male Teacher			
	(1)	(2)	(3)	(4)
Male	0.007	0.006	-0.009	-0.008
	(0.007)	(0.008)	(0.012)	(0.012)
Ethnic Minority	0.010	0.007	0.006	0.008
	(0.010)	(0.010)	(0.020)	(0.020)
High SES	-0.005	-0.007	-0.004	0.000
	(0.008)	(0.008)	(0.014)	(0.015)
Parental Input		-0.002	0.002	0.002
		(0.004)	(0.007)	(0.007)
CM Birthweight			0.004	0.005
			(0.013)	(0.013)
CM Gestation			0.001	0.001
			(0.001)	(0.001)
Constant	0.160***	0.162***	-0.019	-0.092
	(0.006)	(0.006)	(0.189)	(0.193)
Observations	9,750	9,446	3,677	3,676
p-value for joint sig	0.516	0.667	0.941	0.119
Birth & CCare FE	No	No	Yes	Yes
Household FE	No	No	No	Yes

Notes: Outcome variable is a dummy for having a male teacher. Birth and Childcare FE include controls for whether the child was preterm, type of main childcare, childcare hours while household FE controls for household OECD equivalized income. Standard errors are in parentheses. * p $<$0.1, ** p $<$0.05, *** p $<$0.01.

Table 4: Socio-emotional Skills - Internal

					Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Male Teacher	-0.046	-0.052	-0.019	-0.031	0.014	-0.078
	(0.033)	(0.034)	(0.037)	(0.039)	(0.054)	(0.057)
Teacher Experience		0.003		0.004*	0.007**	0.000
		(0.002)		(0.002)	(0.003)	(0.003)
Teacher Experience at School		-0.005*		-0.005*	-0.006	-0.005
		(0.003)		(0.003)	(0.004)	(0.004)
Teaching Degree		0.047		0.029	-0.003	0.052
		(0.038)		(0.040)	(0.057)	(0.055)
Undergraduate Degree		0.084		0.075	0.119	0.011
		(0.053)		(0.055)	(0.079)	(0.078)
Other		-0.286		-0.309	-0.536	-0.124
		(0.213)		(0.231)	(0.345)	(0.312)
Class Size			0.003	0.004	-0.001	0.007
			(0.003)	(0.003)	(0.005)	(0.005)
Mixed-year Classroom			0.029	0.032	0.113*	-0.052
			(0.039)	(0.042)	(0.058)	(0.060)
Total SEN Student			-0.008	-0.007	0.005	-0.018**
			(0.006)	(0.007)	(0.010)	(0.009)
Total Excluded Student			0.001	0.011	-0.006	0.030
			(0.029)	(0.030)	(0.049)	(0.039)
Total Student ESL			0.001	0.001	0.016*	-0.004
			(0.005)	(0.005)	(0.009)	(0.006)
Distruptive Peers			-0.040***	-0.036**	-0.034*	-0.041**
			(0.013)	(0.014)	(0.020)	(0.020)
Mixed-Sex School			-0.132	-0.001	0.486	-0.111
			(0.229)	(0.254)	(0.525)	(0.293)
Constant	0.045***	0.001	0.129	-0.063	-0.548	0.062
	(0.008)	(0.038)	(0.235)	(0.266)	(0.527)	(0.320)
Observations	9504	9091	8907	8534	4213	4321

Notes: Outcome variable is standardized with mean 0 and standard deviation 1. Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table 5: Socio-emotional Skills - External

					Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Male Teacher	0.013	0.007	0.032	0.024	0.061	-0.021
	(0.027)	(0.028)	(0.031)	(0.032)	(0.047)	(0.044)
Teacher Experience		-0.002		-0.002	-0.002	-0.001
		(0.002)		(0.002)	(0.003)	(0.002)
Teacher Experience at School		-0.000		0.001	0.002	-0.000
		(0.002)		(0.002)	(0.004)	(0.003)
Teaching Degree		-0.011		-0.006	-0.025	0.012
		(0.031)		(0.033)	(0.049)	(0.043)
Undergraduate Degree		0.028		0.040	0.075	-0.004
		(0.043)		(0.045)	(0.068)	(0.061)
Other		-0.003		-0.080	-0.320	0.078
		(0.174)		(0.190)	(0.298)	(0.246)
Class Size			0.006**	0.007**	0.006	0.008**
			(0.003)	(0.003)	(0.004)	(0.004)
Mixed-year Classroom			0.018	0.046	0.046	0.046
			(0.032)	(0.034)	(0.050)	(0.047)
Total SEN Student			0.003	0.003	0.005	0.001
			(0.005)	(0.005)	(0.008)	(0.007)
Total Excluded Student			-0.023	-0.035	0.010	-0.062**
			(0.024)	(0.025)	(0.042)	(0.030)
Total Student ESL			0.002	-0.000	-0.006	0.004
			(0.004)	(0.004)	(0.008)	(0.005)
Distruptive Peers			-0.018*	-0.018	-0.021	-0.016
			(0.011)	(0.012)	(0.017)	(0.015)
Mixed-Sex School			-0.105	-0.088	-0.167	-0.033
			(0.183)	(0.201)	(0.392)	(0.230)
Constant	0.036***	0.065**	-0.012	-0.019	-0.073	0.053
	(0.007)	(0.031)	(0.189)	(0.211)	(0.397)	(0.251)
Observations	9496	9081	8897	8522	4209	4313

Notes: Outcome variable is standardized with mean 0 and standard deviation 1. Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table 6: Socio-emotional Skills - Prosocial

					Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Male Teacher	0.074**	0.101***	0.096**	0.114***	0.146**	0.074
	(0.035)	(0.037)	(0.040)	(0.042)	(0.064)	(0.056)
Teacher Experience		-0.001		-0.001	0.003	-0.005*
		(0.002)		(0.002)	(0.004)	(0.003)
Teacher Experience at School		-0.000		0.001	-0.001	0.003
		(0.003)		(0.003)	(0.005)	(0.004)
Teaching Degree		-0.001		0.001	-0.029	0.029
		(0.041)		(0.043)	(0.067)	(0.054)
Undergraduate Degree		0.073		0.085	0.142	0.017
		(0.056)		(0.060)	(0.093)	(0.077)
Other		0.248		0.210	-0.288	0.632**
		(0.229)		(0.249)	(0.406)	(0.308)
Class Size			-0.001	-0.000	-0.001	-0.000
			(0.003)	(0.004)	(0.006)	(0.005)
Mixed-year Classroom			0.027	0.047	0.030	0.062
			(0.042)	(0.045)	(0.068)	(0.059)
Total SEN Student			-0.001	-0.001	0.005	-0.007
			(0.007)	(0.007)	(0.012)	(0.009)
Total Excluded Student			-0.022	-0.024	-0.017	-0.025
			(0.031)	(0.033)	(0.057)	(0.038)
Total Student ESL			0.005	0.003	0.001	0.005
			(0.005)	(0.005)	(0.011)	(0.006)
Distruptive Peers			-0.009	-0.007	0.018	-0.034*
			(0.014)	(0.015)	(0.024)	(0.019)
Mixed-Sex School			-0.057	0.125	-0.007	0.146
			(0.239)	(0.264)	(0.535)	(0.289)
Constant	0.017*	0.018	0.080	-0.115	-0.206	0.093
	(0.009)	(0.041)	(0.247)	(0.278)	(0.541)	(0.315)
Observations	9534	9119	8935	8560	4227	4333

Notes: Outcome variable is standardized with mean 0 and standard deviation 1. Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table 7: Mechanism

	All			Educational			Recreational			Likes Courses			Likes School		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Male Teacher	0.045	0.063	0.006	0.057	-0.058	0.158**	-0.007	0.070	-0.101	0.151***	0.149*	0.121	0.076***	0.084**	0.062
	(0.051)	(0.072)	(0.072)	(0.054)	(0.074)	(0.078)	(0.051)	(0.074)	(0.073)	(0.057)	(0.081)	(0.079)	(0.028)	(0.038)	(0.041)
Observations	8501	4186	4315	8748	4315	4433	8507	4191	4316	8384	4106	4278	8450	4127	4323

Notes: All outcome variables except "likes school" are standardized with mean 0 and standard deviation 1. "Likes school" is a dummy variable. All the regressions include controls for age 7 and 11 teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Appendix A: Additional Analysis

Table A1: Teacher Prosociality

	Ever Donated					Weekly	Monhtly
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Teacher	0.132***	0.120***	0.120***	0.121***			
	(0.013)	(0.013)	(0.013)	(0.015)			
Male		-0.067***	-0.070***	-0.070***			
		(0.007)	(0.007)	(0.007)			
Teacher=1 × Male=1				-0.005			
				(0.030)			
Male Teacher					0.117***	0.039*	0.087***
					(0.026)	(0.022)	(0.034)
Female Teacher					0.191***	-0.009	0.055***
					(0.015)	(0.011)	(0.021)
Female Not Teacher					0.070***	-0.023***	-0.017*
					(0.007)	(0.005)	(0.010)
Constant	0.662***	0.693***	0.695***	0.695***	0.625***	0.078***	0.523***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.007)
Observations	17,818	17,818	17,818	17,818	17,818	11,875	11,875
Ethnicity	No	No	Yes	Yes	Yes	Yes	Yes

Notes: Outcome variables are dummy variables for ever donating in the previous 12 months (columns 1-5), donating weekly or more often (column 6), and donating monthly or more often (column 7). In columns 5-7, the base level is "Male and Not Teacher". Source: Understanding Society Wave 10, the most recent wave with donation information. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A2: Specific SDQ Measures

Panel A: Hyperactivity (Reverse)

	(1)	(2)	(3)
	All	Male	Female
Male Teacher	0.026	0.060	-0.014
	(0.038)	(0.054)	(0.055)
Observations	8063	4041	4022

Panel B: Emotional (Reverse)

	(1)	(2)	(3)
	All	Male	Female
Male Teacher	-0.099*	-0.065	-0.144*
	(0.057)	(0.080)	(0.082)
Observations	7185	3486	3699

Panel C: Conduct (Reverse)

	(1)	(2)	(3)
	All	Male	Female
Male Teacher	-0.048	-0.067	-0.053
	(0.057)	(0.080)	(0.084)
Observations	7143	3589	3554

Panel D: Peer (Reverse)

	(1)	(2)	(3)
	All	Male	Female
Male Teacher	-0.106	-0.050	-0.195**
	(0.066)	(0.096)	(0.093)
Observations	6864	3424	3440

Notes: Outcome variable is standardized with mean 0 and standard deviation 1. Results from the fixed effects regressions. Standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: Parental Investments

					Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Male Teacher	-0.030	0.001	0.007	0.045	0.063	0.006
	(0.042)	(0.044)	(0.048)	(0.051)	(0.072)	(0.072)
Teacher Experience		0.003		0.002	0.003	-0.000
		(0.003)		(0.003)	(0.004)	(0.004)
Teacher Experience at School		-0.001		-0.000	0.006	-0.005
		(0.004)		(0.004)	(0.006)	(0.005)
Teaching Degree		0.058		0.058	0.092	0.033
		(0.048)		(0.051)	(0.076)	(0.069)
Undergraduate Degree		0.026		0.034	0.141	-0.076
		(0.067)		(0.071)	(0.104)	(0.098)
Other		-0.324		-0.330	0.319	-0.843**
		(0.275)		(0.293)	(0.446)	(0.389)
Class Size			-0.007*	-0.008*	-0.010	-0.007
			(0.004)	(0.004)	(0.006)	(0.006)
Mixed-year Classroom			-0.049	-0.068	-0.070	-0.076
			(0.051)	(0.054)	(0.076)	(0.077)
Total SEN Student			-0.011	-0.007	-0.002	-0.013
			(0.008)	(0.009)	(0.012)	(0.012)
Total Excluded Student			-0.055	-0.044	-0.142**	0.027
			(0.038)	(0.039)	(0.064)	(0.049)
Total Student ESL			-0.004	-0.006	0.006	-0.011
			(0.006)	(0.006)	(0.012)	(0.007)
Distruptive Peers			-0.013	-0.017	0.016	-0.048*
			(0.017)	(0.018)	(0.026)	(0.025)
Mixed-Sex School			0.540*	0.461	0.358	0.429
			(0.299)	(0.322)	(0.676)	(0.365)
Constant	-0.009	-0.087*	-0.291	-0.254	-0.278	-0.099
	(0.011)	(0.049)	(0.311)	(0.340)	(0.686)	(0.399)
Observations	9446	9049	8861	8501	4186	4315

Notes: Outcome variable is standardized with mean 0 and standard deviation 1. Results from the fixed effects regressions. Standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Parental Investments - Education

					Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Male Teacher	-0.011	0.019	0.021	0.057	-0.058	0.158**
	(0.045)	(0.046)	(0.051)	(0.054)	(0.074)	(0.078)
Teacher Experience		0.003		0.003	0.005	-0.000
		(0.003)		(0.003)	(0.004)	(0.004)
Teacher Experience at School		0.003		0.002	0.003	0.001
		(0.004)		(0.004)	(0.006)	(0.006)
Teaching Degree		0.022		0.002	-0.021	0.031
		(0.051)		(0.054)	(0.078)	(0.076)
Undergraduate Degree		-0.011		-0.029	0.053	-0.115
		(0.071)		(0.075)	(0.107)	(0.106)
Other		-0.354		-0.375	0.229	-0.820*
		(0.286)		(0.312)	(0.445)	(0.435)
Class Size			-0.008*	-0.009**	-0.011*	-0.009
			(0.004)	(0.005)	(0.006)	(0.007)
Mixed-year Classroom			-0.082	-0.105*	-0.076	-0.132
			(0.055)	(0.057)	(0.079)	(0.083)
Total SEN Student			0.002	0.001	0.012	-0.009
			(0.009)	(0.009)	(0.013)	(0.012)
Total Excluded Student			-0.022	-0.014	-0.074	0.035
			(0.040)	(0.041)	(0.066)	(0.053)
Total Student ESL			0.004	0.004	0.022*	-0.005
			(0.006)	(0.007)	(0.012)	(0.008)
Distruptive Peers			-0.016	-0.022	0.062**	-0.100***
			(0.018)	(0.019)	(0.027)	(0.027)
Mixed-Sex School			0.449	0.176	0.050	0.089
			(0.311)	(0.340)	(0.625)	(0.408)
Constant	0.013	-0.055	-0.205	0.052	0.083	0.246
	(0.012)	(0.052)	(0.321)	(0.357)	(0.632)	(0.445)
Observations	9737	9318	9125	8748	4315	4433

Notes: Outcome variable is standardized with mean 0 and standard deviation 1. Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A5: Parental Investments - Recreation

					Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Male Teacher	-0.019	-0.003	-0.022	-0.007	0.070	-0.101
	(0.042)	(0.045)	(0.049)	(0.051)	(0.074)	(0.073)
Teacher Experience		0.003		0.001	0.001	0.002
		(0.003)		(0.003)	(0.004)	(0.004)
Teacher Experience at School		-0.004		-0.002	0.003	-0.007
		(0.004)		(0.004)	(0.006)	(0.005)
Teaching Degree		0.075		0.092*	0.156**	0.035
		(0.049)		(0.052)	(0.078)	(0.070)
Undergraduate Degree		0.053		0.072	0.152	-0.008
		(0.068)		(0.072)	(0.107)	(0.099)
Other		-0.122		-0.093	0.400	-0.541
		(0.281)		(0.298)	(0.459)	(0.394)
Class Size			-0.003	-0.003	-0.006	-0.001
			(0.004)	(0.004)	(0.006)	(0.006)
Mixed-year Classroom			-0.047	-0.052	-0.068	-0.049
			(0.052)	(0.055)	(0.078)	(0.078)
Total SEN Student			-0.014*	-0.009	-0.008	-0.009
			(0.008)	(0.009)	(0.013)	(0.012)
Total Excluded Student			-0.063	-0.053	-0.131**	-0.004
			(0.039)	(0.040)	(0.066)	(0.050)
Total Student ESL			-0.009	-0.011*	-0.010	-0.010
			(0.006)	(0.006)	(0.012)	(0.007)
Distruptive Peers			0.019	0.019	0.010	0.027
			(0.017)	(0.018)	(0.027)	(0.025)
Mixed-Sex School			0.280	0.345	0.261	0.374
			(0.303)	(0.328)	(0.695)	(0.370)
Constant	-0.021*	-0.095*	-0.158	-0.296	-0.260	-0.281
	(0.011)	(0.050)	(0.314)	(0.345)	(0.705)	(0.404)
Observations	9454	9057	8867	8507	4191	4316

Notes: Outcome variable is standardized with mean 0 and standard deviation 1. Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A6: Likes Courses

					Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Male Teacher	0.079*	0.105**	0.111**	0.151***	0.149*	0.121
	(0.047)	(0.049)	(0.054)	(0.057)	(0.081)	(0.079)
Teacher Experience		0.005		0.006**	-0.001	0.011***
		(0.003)		(0.003)	(0.005)	(0.004)
Teacher Experience at School		-0.001		-0.001	-0.001	-0.001
		(0.004)		(0.004)	(0.007)	(0.006)
Teaching Degree		-0.022		-0.026	0.111	-0.149**
		(0.055)		(0.057)	(0.086)	(0.076)
Undergraduate Degree		-0.061		-0.027	0.249**	-0.314***
		(0.075)		(0.080)	(0.118)	(0.107)
Other		-0.210		-0.395	-0.202	-0.569
		(0.314)		(0.345)	(0.496)	(0.476)
Class Size			-0.007	-0.006	-0.009	-0.003
			(0.005)	(0.005)	(0.007)	(0.007)
Mixed-year Classroom			0.086	0.099	0.080	0.116
			(0.057)	(0.060)	(0.086)	(0.083)
Total SEN Student			0.005	0.010	0.023*	-0.004
			(0.009)	(0.009)	(0.014)	(0.012)
Total Excluded Student			-0.037	-0.046	-0.005	-0.057
			(0.041)	(0.043)	(0.072)	(0.052)
Total Student ESL			0.009	0.007	0.009	0.007
			(0.006)	(0.007)	(0.012)	(0.008)
Distruptive Peers			-0.027	-0.037*	0.079***	-0.136***
			(0.019)	(0.020)	(0.030)	(0.027)
Mixed-Sex School			0.023	-0.105	0.050	-0.303
			(0.331)	(0.356)	(0.755)	(0.395)
Constant	-0.008	-0.040	0.119	0.169	-0.126	0.497
	(0.012)	(0.055)	(0.342)	(0.374)	(0.755)	(0.433)
Observations	9304	8913	8736	8384	4106	4278

Notes: Outcome variable is standardized with mean 0 and standard deviation 1. Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A7: Likes School

	(1)	(2)	(3)	(4)	Male (5)	Female (6)
Male Teacher	0.033	0.038	0.071***	0.076***	0.084**	0.062
	(0.023)	(0.024)	(0.026)	(0.028)	(0.038)	(0.041)
Teacher Experience		-0.001		-0.000	-0.001	-0.000
		(0.001)		(0.002)	(0.002)	(0.002)
Teacher Experience at School		-0.000		0.000	0.001	-0.000
		(0.002)		(0.002)	(0.003)	(0.003)
Teaching Degree		-0.037		-0.037	-0.073*	-0.010
		(0.027)		(0.028)	(0.040)	(0.039)
Undergraduate Degree		-0.047		-0.049	-0.068	-0.049
		(0.036)		(0.039)	(0.055)	(0.055)
Other		-0.245		-0.233	-0.365	-0.121
		(0.150)		(0.165)	(0.234)	(0.233)
Class Size			-0.004	-0.003	-0.003	-0.002
			(0.002)	(0.002)	(0.003)	(0.003)
Mixed-year Classroom			0.040	0.030	0.053	0.006
			(0.028)	(0.029)	(0.040)	(0.043)
Total SEN Student			0.003	0.004	0.016**	-0.006
			(0.004)	(0.005)	(0.007)	(0.006)
Total Excluded Student			-0.008	-0.004	-0.010	-0.000
			(0.020)	(0.021)	(0.033)	(0.027)
Total Student ESL			-0.002	-0.002	-0.006	0.001
			(0.003)	(0.003)	(0.006)	(0.004)
Distruptive Peers			-0.028***	-0.030***	-0.007	-0.049***
			(0.009)	(0.010)	(0.014)	(0.014)
Mixed-Sex School			-0.088	-0.107	-0.200	-0.086
			(0.163)	(0.176)	(0.356)	(0.206)
Constant	0.501***	0.540***	0.698***	0.733***	0.742**	0.801***
	(0.006)	(0.027)	(0.169)	(0.184)	(0.356)	(0.226)
Observations	9389	8994	8805	8450	4127	4323

Notes: Outcome variable is a dummy variable for "likes school". Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A8: Enjoyment from Courses

	English			Mathematics			Science		
	(1) All	(2) Male	(3) Female	(4) All	(5) Male	(6) Female	(7) All	(8) Male	(9) Female
Male Teacher	0.050	0.088	0.002	0.074*	0.072	0.047	0.086**	0.043	0.116*
	(0.039)	(0.059)	(0.052)	(0.039)	(0.055)	(0.055)	(0.042)	(0.059)	(0.060)
Observations	8452	4134	4318	8453	4129	4324	8414	4121	4293

Notes: All the regressions include controls for age 7 and 11 teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01

Table A9: Change in the Teacher Gender and Socio-Emotional Skills

	Internal			External			Prosocial		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All	Male	Female	All	Male	Female	All	Male	Female
Male to Male	-0.107	-0.002	-0.170	-0.053	0.162	-0.190	-0.117	-0.135	-0.095
	(0.131)	(0.224)	(0.160)	(0.114)	(0.187)	(0.145)	(0.168)	(0.264)	(0.210)
Female to Male	-0.010	0.027	-0.042	-0.010	0.031	-0.020	0.054	0.043	0.084
	(0.041)	(0.055)	(0.062)	(0.034)	(0.051)	(0.046)	(0.043)	(0.065)	(0.054)
Male to Female	0.104	0.025	0.187	-0.077	-0.175	0.037	0.026	-0.007	0.081
	(0.094)	(0.134)	(0.130)	(0.085)	(0.140)	(0.093)	(0.098)	(0.135)	(0.143)
Observations	2252	1091	1161	2256	1093	1163	2259	1094	1165

Notes: All the regressions include controls for age 7 and 11 teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01

Table A10: Change in the Teacher Gender and Parental Investments

	All			Educational			Recreational			Likes Courses			Likes School		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Male to Male	0.145	0.038	-0.198	-0.088	-0.198	0.022	0.279**	0.224	0.289*	0.011	0.388	-0.244	-0.006	0.084	-0.095
	(0.155)	(0.160)	(0.295)	(0.191)	(0.295)	(0.238)	(0.139)	(0.231)	(0.167)	(0.209)	(0.266)	(0.301)	(0.095)	(0.121)	(0.132)
Female to Male	0.061	0.056	-0.047	0.028	-0.047	0.118*	0.032	0.055	0.003	0.110**	0.146**	0.047	0.039	0.032	0.057
	(0.046)	(0.068)	(0.072)	(0.050)	(0.072)	(0.070)	(0.046)	(0.070)	(0.063)	(0.050)	(0.069)	(0.072)	(0.025)	(0.035)	(0.036)
Male to Female	0.097	0.142	0.078	0.014	0.078	-0.057	0.136	0.104	0.168	0.111	0.171	0.031	-0.018	-0.115	0.087
	(0.089)	(0.114)	(0.123)	(0.097)	(0.123)	(0.144)	(0.097)	(0.148)	(0.126)	(0.093)	(0.127)	(0.137)	(0.055)	(0.071)	(0.076)
Observations	2188	1059	1123	2320	1123	1197	2191	1061	1130	2131	1022	1109	2162	1031	1131

Notes: All the regressions include controls for age 7 and 11 teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p $<$0.1, ** p $<$0.05, *** p $<$0.01.

Table A11: Heterogeneity- Internal

	(1) All	(2) Male	(3) Female	(4) High SES	(5) Low SES	(6) White	(7) Minority
Male Teacher	-0.031	0.014	-0.078	-0.047	-0.021	-0.007	-0.239**
	(0.039)	(0.054)	(0.057)	(0.063)	(0.050)	(0.042)	(0.117)
Observations	8534	4213	4321	2983	5551	7130	1404

Notes: Results from the fixed effects regressions. All the regressions include controls for teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A12: Heterogeneity- External

	(1) All	(2) Male	(3) Female	(4) High SES	(5) Low SES	(6) White	(7) Minority
Male Teacher	0.024	0.061	-0.021	0.039	0.010	0.030	-0.026
	(0.032)	(0.047)	(0.044)	(0.047)	(0.043)	(0.034)	(0.106)
Observations	8522	4209	4313	2985	5537	7130	1392

*Notes:*Results from the fixed effects regressions. All the regressions include controls for teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A13: Heterogeneity- Prosocial

	(1) All	(2) Male	(3) Female	(4) High SES	(5) Low SES	(6) White	(7) Minority
Male Teacher	0.114***	0.146**	0.074	0.145**	0.099*	0.124***	0.093
	(0.042)	(0.064)	(0.056)	(0.065)	(0.055)	(0.044)	(0.151)
Observations	8560	4227	4333	2985	5575	7144	1416

Notes: Results from the fixed effects regressions. All the regressions include controls for teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A14: Heterogeneity- Parental Investments

	(1) All	(2) Male	(3) Female	(4) High SES	(5) Low SES	(6) White	(7) Minority
Male Teacher	0.045	0.063	0.006	0.121	0.005	0.048	0.037
	(0.051)	(0.072)	(0.072)	(0.076)	(0.067)	(0.053)	(0.177)
Observations	8501	4186	4315	2955	5546	7005	1496

Notes: Results from the fixed effects regressions. All the regressions include controls for teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A15: Heterogeneity- Parental Investments - Education

	(1) All	(2) Male	(3) Female	(4) High SES	(5) Low SES	(6) White	(7) Minority
Male Teacher	0.057	-0.058	0.158**	0.196**	-0.023	0.066	0.005
	(0.054)	(0.074)	(0.078)	(0.090)	(0.067)	(0.058)	(0.147)
Observations	8748	4315	4433	3009	5739	7212	1536

Notes: Results from the fixed effects regressions. All the regressions include controls for teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A16: Heterogeneity- Parental Investments - Recreation

	(1) All	(2) Male	(3) Female	(4) High SES	(5) Low SES	(6) White	(7) Minority
Male Teacher	-0.007	0.070	-0.101	0.042	-0.029	-0.003	-0.013
	(0.051)	(0.074)	(0.073)	(0.074)	(0.070)	(0.053)	(0.183)
Observations	8507	4191	4316	2956	5551	7010	1497

Notes: Results from the fixed effects regressions. All the regressions include controls for teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A17: Heterogeneity - Likes Courses

	(1) All	(2) Male	(3) Female	(4) High SES	(5) Low SES	(6) White	(7) Minority
Male Teacher	0.151***	0.149*	0.121	0.191**	0.131*	0.153**	0.161
	(0.057)	(0.081)	(0.079)	(0.090)	(0.073)	(0.062)	(0.148)
Observations	8384	4106	4278	2903	5481	6914	1470

Notes: Results from the fixed effects regressions. All the regressions include controls for teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Table A18: Heterogeneity - Likes School

	(1) All	(2) Male	(3) Female	(4) High SES	(5) Low SES	(6) White	(7) Minority
Male Teacher	0.076***	0.084**	0.062	0.086*	0.074**	0.087***	-0.022
	(0.028)	(0.038)	(0.041)	(0.047)	(0.035)	(0.030)	(0.082)
Observations	8450	4127	4323	2916	5534	6972	1478

Notes: Results from the fixed effects regressions. All the regressions include controls for teacher characteristics: teacher education, teacher experience and teacher experience at the same school, classroom characteristics: class size, mixed-year classroom, total special education needs students, total number of excluded students, total number of English as a second language students, disruptive peers and school level characteristic: gender composition of school, Results from the fixed effects regressions. Standard errors are in parentheses. * p <0.1, ** p <0.05, *** p <0.01.

Appendix B: Parental Investment Variables

Table B1: Parental Investments

		Activity Types		
		All	Educational	Recreational
Age 7	Freq CM receives help with reading?	x	x	
	Freq CM helped with writing	x	x	
	Freq CM helped with maths	x	x	
	Freq tells stories to CM	x		x
	Freq musical activities with CM	x		x
	Freq CM paint/draw at home	x		x
	Freq you play physically active games with CM	x		x
	Freq play indoor games with child	x		x
	Freq take child to park or playground	x		x
	Freq you read to CM	x		x
Age 11	Freq talks to CM about things important to them	x	x	
	Freq anyone at home help with CM's homework	x	x	
	Freq anyone at home make sure CMs HW is complete	x	x	
	Anyone has attended parent evening at CM school	x	x	
	Freq you play physically active games with CM	x		x
	Freq play INDOOR games with child	x		x