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Abstract

On the demand side, we test how early childhood education creates preferences for Corporate Social Responsibility (CSR) through teacher-student gender random-matching. Using originally collected individual-level data, we examine how female teachers in elementary school influence students' CSR stated preferences in their adulthood. In a quasi-natural experiment setting, our major findings are: (1) female teachers affect pupils' preferences for corporate responsibility later in life, (2) the effect of a female teacher is robust if she was a class teacher in first grade, (3) the effect of a female teacher is observed only for different-gender pupils but not for same-gender ones. These findings imply that the gender gap in adulthood is reduced by matching female teachers with male students in earlier years. We examine and support the female socialization hypothesis.

JEL classification: G32, G34, J16, M14, I21, H89

Key words: Gender difference, Female socialization, Teacher–Student Gender Matches, Corporate Social Responsibility, ESG.

1. Introduction.

This study tests how learning experience in childhood leads to a sense of values and economic outcomes. Early childhood education has received an increasing amount of attention from social scientists as a key factor to determine students' life path (e.g., Heckman et al., 2010a; 2010b; 2013).[1] The influence of education is captured by both quantity, such as number of schooling years, and by quality. Teaching practices and the education system form students' social capital (Algan et al. 2013), attitude towards risk (Hryshko et al., 2011), and identity (Aspachs-Bracons et al. 2008).[2]

Housing economics exert environment influence on students' outcomes. Outside of school, children learn from their parents to form their worldview and social values. Preferences for trust and cooperation are transmitted in communities through families (Bisin and Verdier, 2001; Bisin et al., 2004). Men with working mothers tend to prefer working women (Kawaguchi and Miyazaki, 2009) and the wives of men whose mothers worked are significantly more likely to work (Fernandez, et al., 2004). As a consequence, the gender gap in labor force participation reduces over time. Different-genders matching has reverse causality. Men having daughters support women's views (e.g., Glynn and Sen, 2014; Oswald and Powdthavee, 2010; Washington, 2008). According to this paper, women influence men's views and preferences, which is called *female socialization*

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[1] Apart from education, the impact of early-life experiences and conditions on managerial decision are examined (Malmendier et.al, 2011). Differences in individuals' prenatal environments captured by birth weight cause heterogeneity in financial decisions later in adulthood (Cronqvist et al., 2016). Early-life disasters influences CEO decision making (Bernile at al, 2017).

[2] The quantitative effect of education on citizenship is examined by Milligan et al., (2004) suggesting that the effect of extra schooling induced through compulsory schooling laws influenced voter turnout.

Cronqvist and Yu (2017) examined the *female socialization hypothesis* in finance by considering how corporate social responsibility (CSR) depends on whether a firm's chief executive officer (CEO) has his daughter. The daughter's sense of values is unlikely to relate to the firm's performance. Investors in socially responsible investment (SRI) funds are more concerned with ethical or social issues than with fund performance (e.g., Renneboog et al., 2011; Ho et al., 2016; El Ghoul and Karoui, 2017). That is, investors will forgo financial performance to invest in accordance with CSR preferences (Riedl and Smeets, 2017). Cronqvist and Yu (2017) explore CSR from the supply side, i.e. the firm's side. In this paper, we intend to further contribute to the CSR literature by analyzing the genders' interactions with respect to the demand for CSR. That is, CSR demand comes from people who intend to purchase goods supplied by firms which contribute to CSR because they value the firm highly. To put it another way, CSR investment provides added value to the firm's goods, which increases consumers' demand for it. This paper investigates the *"different-genders matching effect"* on individuals' CSR preferences by considering the propagation mechanism from female teachers into male students.

The Great East Japan earthquake took place in March 2011 and then the Kumamoto earthquake occurred in April 2016, which invoked citizens to recognize the importance of firms' CSR. In June 2016, we collected individual data from the whole of Japan and the sample size is approximately 7,000. The data includes individuals' stated CSR preferences and their detailed educational background. In Japanese elementary schools, pupils are randomly assigned to classes regardless of the homeroom teacher's gender.[3] Especially in first grade, the assignment is considered as a quasi-natural experiment to

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[3] At elementary school in Japan the homeroom teacher is in charge of one class and teaches most of the subjects to that class. Therefore, the teacher's influence on their pupils is much stronger than the teachers in high school.

explore teacher-student gender matching effects on students. Schools do not have information about the compatibility between a homeroom teacher and the pupils. Our dataset has information whether respondents belonged to a female teacher's class in each elementary school grade. This data makes it possible to examine how the class teacher's gender in the year of entering elementary school form individuals' CSR preferences in adulthood and compare the effects between male and female respondents.

Using regression analysis, we find the followings. Women tend to prefer firms that are responsible for the environment, local communities, and governance, compared to men. However, if the male pupils had a female teacher in the first year, they prefer CSR in adulthood, while this effect is not observed for female pupils. This implies that the female teachers - male pupils matching reduces the gender difference in CSR preferences since female teachers tend to have stronger interests in CSR compared to male pupils, whose CSR concerns are low.

The remainder of this article is organized as follows. Section 2 overviews the related literature. Section 3 describes the setting and the data. Section 4 presents the empirical methodology. Estimation results and their interpretation are presented in Section 5. The final section offers some reflections and conclusions.

2. Literature Review

Economic researchers have paid attention to gender studies. Same-gender teacher-student matching has been noted to improve students' educational performance (Dee 2007; Lim and Meer 2017). [4] Women's employment status is transmitted to their

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[4] The effect of same-gender teachers on students has not been observed in other studies (Holmlund and Sund 2008; Cho 2012; Winters et al., 2013; Sansone 2017).

daughters, suggesting that a mother is a role model for her daughter (Tanaka, 2008). However, previous research did not emphasize the different gender-matching effects in education. Individual characteristics and preferences partly differ according to gender (Croson and Gneezy, 2009). Inevitably, the learning effect from the same-gender teacher and parents becomes smaller. If so, same-gender transmission effects hardly exist and different-gender interaction is possibly influential.[5]

A number of works examine the *female socialization hypothesis* where gender differences within the family are analyzed. Having a daughter changes a father's political view (Washington, 2008; Oswald and Powdthavee, 2010). Similarly, having a daughter leads her father's preference to be similar to female's one (Warner 1991; Warner and Steel 1999). The reason might be that having a daughter forms a father's identity (Akerlof and Kranton, 2000; Chen and Li, 2009). There are also similar observations for the mother-and-son relationship. A son with a full-time working mother is more inclined to have a positive view about working women (Kawaguchi and Miyazaki, 2009), which, in turn, encourages his wife's labor force participation (Fernandez, et al., 2004).

Compared to men, women are more benevolent and universally concerned (e.g., Beutel and Marini, 1995; Adams and Funk, 2012) and less aggressive in competitive environments (Booth and Yamamura, 2018). In an experimental setting, women behave more generously than men (Eckel and Grossman, 1998)[6]. It is valuable to examine whether different-gender interactions through education reduce the gender difference in prosocial preferences, which can be captured by CSR-related preferences.

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[5] Recently, the influence of gender interactions is explored in credit market (Beck et al. 2018).
[6] In empirical studies, the effect of gender differences of social preferences depends on the experimental setting (e.g., Andreoni and Vesterlund, 2001; DellaVigna, List, Malmendier, and Rao, 2013).

A firm's CSR activities are mainly analyzed from the supply side. A ceaseless firm's CSR investment plays an important role in providing information on the firm's strategy for investors and consumers in the market (Abdelsalam, 2014). From a valuation perspective, CSR expenditures potentially create value for the firm (Fatemi et al., 2015). Empirical works show that a firm's CSR activities create an ethical and healthy corporate image, which gives credibility to its R&D projects (Ho et al., 2016). Firms with higher CSR scores tend to receive more favorable news coverage, and the positive interaction between CSR and the media coverage improves their performance (Cahan et al., 2015). Consistently, empirical works report various benefits from CSR; for example, firms with higher CSR intensity have better stock return performance, profitability, and sales per employee (Lins et al, 2017), and higher net interest income and non-interest income (Wu and Shen, 2013). The firm's corporate environmental policies reduce environmental risk exposure, which increases shareholder value (Fernando et al., 2017). CSR activities publicized through media coverage increase shareholder value, which, in turn, improves future operating performance (Byun and Oh, 2018). Better CSR performance results in lower credit risk (Stellner et al., 2015). Socially responsible mutual funds show better performance than conventional mutual funds during market crises (Nofsinger and Varma, 2014).

As far as CSR' relationship with governance is concerned, CSR investment depends on the country's legal origin (Liang and Renneboog, 2017) and local political and religious factors (Borgers et. al., 2015). Family-controlled firms exhibit lower CSR performance due to greater agency problems (El Ghoul et al., 2016). These findings suggest the firm's governance is crucial in determining the firm's benefit from CSR. In line with that, well-governed firms are less likely to suffer from agency concerns and

more likely to engage in CSR (Ferrell et al., 2016). Socially responsible firms which commit to a high standard of transparency have lower crash risk (Kim et al., 2014). CSR is thought to increase social capital. This, in turn, reduces the equity cost of firms located in areas with high social capital (Gupta et al., 2018). Therefore, a firm's CSR investment improves the firm's performance through the formation of social capital. Therefore, a firm from a higher social capital region tends to exhibit higher CSR investment (Jha and Cox, 2015).

Gender matters for CSR activities. Confident CEOs are likely to underestimate firm risks and are unlikely to invest in CSR (McCarthy et al., 2017).[7] Men are more inclined to be over-confident with respect to investing than women, which possibly results in smaller return on investment (Barber and Odean, 2001). Female CEOs invest more in CSR than male CEOs. When honesty is concerned, men are significantly more inclined than women to deceive to secure a monetary benefit (Almenberg and Dreber, 2015).[8] However, deception results in distrust for those affected by such dishonest behavior, eventually resulting in lost benefits in the long-run. Naturally, gender-balanced board meetings lead to improvements in the firm's efficiency (Schwartz-Ziv, 2017).[9]

Despite the benefits from female representation, female CEOs are under more severe credit constraints than male CEOs (Moro et al., 2017). Male Wall Street analysts improve their job performance through alumni network better than female analysts (Fang and Huang, 2017). Male executives receive larger profits from insider trading because female executives have a disadvantage relative to male colleagues in access to insider

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[7] Female CEOs reduce firm risk compared to male CEOs (Walayet et al., 2013).
[8] It has been observed that men are more dishonest than women (Friesen and Gangadharan, 2012).
[9] Having a daughter reduces parents' dishonest behavior (e.g., Houser et al., 2016).

information (Inci et al., 2017).[10] These findings support the evidence on discrimination against female executives and the existence of the proverbial glass ceiling.

All the above gender studies about CSR are from the supply-side perspective. We contribute to the existing literature by studying CSR from the demand-side perspective. This is the first demand-side gender analysis on CSR. Without gender distinction, conventional demand analysis points out that individuals were more likely to prefer products from manufacturing companies with a higher CSR rating and this tendency is stronger for more educated people (Cai and Aguilar, 2013). Similarly, consumers tend to prefer the products of firms who are active in CSR (Arana and Leon, 2009).

3. Empirical methodology

3.1. The data collection process

To investigate the effect of early childhood education on CSR preferences, we obtained individual-level data through a web-based survey in July 2016. The Nikkei Research Company was commissioned to conduct the web survey. According to a 2015 survey on information technology, over 90 % of the working-age population in Japan is web-users. Therefore, selection bias is not expected.[11] The sample's demographic composition is equivalent to the 2015 Japan Census composition.

Since we aimed to collect over 10,000 observations, the survey was active until 10,000 observations were collected. Indeed, 12,176 respondents were asked to fill in the

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[10] According to Jensen et al. (2018), female inventors have a disadvantage in the process of obtaining and maintaining patents. However, patents authored by women who were not easily identified as women were cited more frequently.
[11] Data is available from the official website of the Statistics Bureau, Ministry of Internal Affairs and Communications http://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html (access on April 5, 2018).

questionnaire and 9,997 returned it. However, since some questions were not answered, the sample size reduced to 6,897. The number of male and female respondents were 3,486 and 3,501, respectively.

3.2. Features of the data

Table 1 provides definitions of the key variables and their descriptive statistics. CSR is a vague concept and covers various facets in society. We first define our CSR measure. *Environment, Social,* and *Governance* (ESG) have been used in recent studies to indicate a firm's social responsibility (Ailman et al., 2017; Hanson et al., 2017).

ESG is a superior measure in that it is a concrete notion. *Environment* captures the aspect of the firm's responsibility for environmental problems, *Social* captures the firm's responsibility for the local community, and *Governance* reflects the firm's transparency. Following existing research, we adopt ESG to analyze the stated preferences for CSR.[12] The questions for *Environment, Social,* and *Governance* in our survey are presented in Table 1. Participants were asked to provide their responses on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). Even though the means and standard deviations across these composites are not very different from each other, the difference between men and women varies according to the CSR proxies because different proxies are meant to capture different CSR aspect. Hence, in order to capture overall CSR, we also use the average values of these three variables (*ESG*), to evaluate how the assignment to a female teacher class influenced the formation of the pupils' CSR preferences.

In Japan, education is compulsory for 6 years in elementary school and 3 years in

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[12] The ESG term is used to examine CSR in the academic literature (Nofsinger and Varma 2014; Stellner et al., 2015).

junior high school. Pupils enter elementary school in April at the age of 6 and graduate from it in March at the age of 12. Years spent in a female teacher's class in elementary school (*Female teacher years*) range between 0 (i.e., male teachers in all 6 years) and 6 (i.e., female teachers in all 6 years). The average value is 3.44, which implies that respondents were assigned to a class with a female teacher in almost 60 % of their elementary school years. According to the 2016 School Basic Survey, female teachers represent 64% of the full-time teachers in elementary school.[13] Hence, the sample of this paper is representative of Japan's society.

Figure 1 illustrates the difference in CSR scores in adulthood between those who belonged to a woman's and a man's class in each grade in elementary school. Overall, the CSR level of pupils belonging to a woman's class is higher than that of a man's class in all cases. The difference in CSR between female and male teachers' classes is the largest in first grade and declines as pupils are promoted. The CSR of pupils who belonged to female teachers' classes is not very different from those who belonged to male teachers' classes in the higher grades (from 4th to 6th grade). These findings suggest that female teachers may influence their students' CSR preferences only if the respondents belonged to a female teacher's class in the lower grades. On the other hand, Figure 2 shows the difference in CSR values between male and female respondents. In all cases, women's scores are higher than men's ones. Considering Figures 1 and 2 together, this study intends to test the following hypothesis:

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[13] Data is available from the official website of the Statistics Bureau, Ministry of Internal Affairs and Communications
https://www.e-stat.go.jp/stat-
search/files?page=1&layout=datalist&tstat=000001011528&cycle=0&tclass1=000001110643&tclas
s2=000001110644&tclass3=000001110645&tclass4=000001110649&second2=1 (access on April 5, 2018)

Hypothesis:

A female teacher's CSR preferences form her pupils' preferences in their adulthood if the pupils belonged to her class in the lower elementary school grades.

4. Empirical specifications

Our baseline model assesses how a female homeroom (class) teacher in elementary school affects her pupils' CSR preferences later in life. The estimated function takes the following form:

$$ESG_i = \alpha_0 + \alpha_1 \textit{ Female teacher years}_i + \alpha_2 \textit{ Group learn}_i + \alpha_3 \textit{ Competition}_i$$
$$+ \alpha_4 \textit{ Social capital}_i + X'_i B + u_i. \qquad (1)$$

Apart from the above specification where *ESG* is the dependent variable, there are three other specifications where the three factors decomposed from ESG, *Environment, Social,* and *Governance,* are dependent variables. *Environment, Social,* and *Governance* capture the respondents' view on the firm's responsibility for the environment, transparency, and the local community. The key independent variable is *Female teacher years* (the total number of years with a female homeroom teacher). Its coefficient has a positive sign if female teachers affected pupils' CSR preference. In addition to the full-sample estimation, we use sub-samples divided by the respondents' gender to examine the teacher–pupil gender-matching effects. *Female teacher years* would show a significant positive sign only for the men's sample, if a different-gender matching effect exists (e.g., Washington, 2008; Oswald and Powdthavee, 2010; Cronqvist and Yu, 2017). Another possibility is that *Female teacher years* shows a significant positive sign only for the women's sample, if a same-gender matching effect is observed (e.g., Dee 2007; Lim and Meer, 2017).

Teachers have various opportunities to interact with pupils and display their attitudes, which might reflect their gender identity. This influences pupils' characters and views. Early childhood education is expected to develop non-cognitive skills and affect preferences for policy and firm activity (Yamamura and Tsutsui, 2018). In this study, we focus on gender difference in the formation of non-cognitive skills. However, some teaching practices such as group study are known to be effective in enhancing non-cognitive skills regardless of the teacher's gender. Based on previous literature (Algan et al., 2013), *Group learn* and *Competition* are included as independent variables to control for these effects.

Further, social capital influences the firm's CSR investment (Jha and Cox, 2015; Gupta, et al., 2018) and also the individual's CSR preference. Accordingly, we also include *Social capital* as an independent variable, which captures the individual's accumulation of social capital in childhood (see Table 1 for the definitions of these variables). These variables are expected to have a positive sign. The reason is individuals learn diverse values and views from others in their childhood, leading them to have diverse views. This leads them to have critical view about the common view about the role of firm such as pursuing cost minimization in adulthood. This inference is in line with existing research (e.g., Bisin and Verdier, 2001; Bisin et al., 2004; Algan et al., 2013).

In addition, the control variables vector is denoted by X_i and the vector of the estimated coefficients is denoted by B. The control variables are the individual's number of schooling years as a proxy for the quantity of education, age, 17 income dummies, and 19 occupation dummies. It is plausible that family conditions also influence the formation of preferences. Parents' educational attainments are controlled for by including father's and mother's educational attainment dummies. Further, family composition is an

important factor to determine CSR preferences (Cronqvist and Yu, 2017). Therefore, the number of siblings is included separately. The effects of life circumstances are controlled for by dummies for current residential prefecture and residential prefecture when the pupil was 6 years old. With the exception of number of schooling years, age, and siblings, the estimation results for these control variables are not reported. However, these variables are included in all estimations.[14] For a more detailed examination of the alternative specifications, we divide *Female teacher years* into years spent in low and high grades. *Female teacher years in low grade* is the number of years the teacher was a woman during the first 3 years, that is, first to third grade. *Female teacher years in high grade* is the number of years the teacher was a woman during the last 3 years, that is, forth to sixth grade.

This specification allows us to compare the effect of a female teacher between the earlier and later development stages. The female teacher's positive influence is only observed for *Female teacher years in low grade* if earlier childhood education has a significant effect (e.g., Heckman et al., 2010a; 2010b; 2013). Teachers learn about pupils' characters and dispositions while teaching them and observing their behavior in school. When pupils were inappropriately matched with a female teacher in the past, they are likely to be assigned to a male teacher class. That is, similar to the selection bias of daughters' birth order (Cronqvist and Yu, 2017), the assignment to a female teacher class in higher grades seems to be determined by information about the compatibility between teacher-pupil genders. Therefore, the assignment to a women's class in first grade is more random and exogenous than for other grades. As a result, the first-grade assignment is

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[14] The results for the control variables are available from the corresponding author upon request.

free from selection bias. Therefore, we use dummy variables for a female teacher class in each grade to identify the effect of a female teacher class in first grade. We note that the reference group is not any grade. The reference group comprises pupils who were assigned to a male teacher's class in every grade. Hence, there is a possibility that all the 6 female teacher dummies are equal to 1 when respondents were assigned to a female teacher's class from first to sixth grade. *Female teacher in 1st year* is expected to have a significant positive sign if the female teacher affects the pupils' CSR preference. Since all variables are exogenous with respect to the CSR variables, the models are estimated with Ordinary Least Squares (OLS).

5. Results

5.1. Baseline model

Table 2 presents the estimation results of the baseline model. The results based on the full sample are presented in panel A. The results of the male and female sub-samples are in panels B and C, respectively.

In Panel A, the estimates from the regressions where ESG, Environment, Social, and Governance are used as the dependent variables are presented in columns 1 to 4, respectively. The *Female teacher years* coefficient has a positive sign and is statistically significant in all columns. This is consistent with our *Hypothesis* provided in section 3. Therefore, the gender of the elementary school teacher plays a critical role in forming pupils' CSR preference. The *Women* coefficient shows a positive and statistically significant sign except in column 4. These results suggest that, in comparison with male respondents, female respondents place higher value on firms which are responsible for the environment and the local community. However, there is no gender difference about

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the firm's responsibility for transparency (*Governance* in column 4). According to our interpretation of the *Female teacher years* coefficient, pupils who learned from female teachers care for CSR. Further, the results of *Women* show that women are more inclined to care for CSR. The combined results of the *Female teacher years* and the *Women* variables imply that pupils who learned from female teachers tend to have similar preferences to their teachers. After controlling for the learning effects (*Female teacher years*), the significantly positive sign for the *Women* coefficient in columns 1-3 indicates that the gender-difference in CSR is not only caused by learning from female teachers but is also natural. On the other hand, as presented in column 4, *Women* is not statistically significant, implying that the gender-difference of *Governance* is not determined by nature.

Analyzing education practices in elementary school, panel A shows the signs of *Group learn* and *Competition* are significant and positive in most cases. This is consistent with the argument that specific educational features such as teaching practices affect pupils' preferences and views about society (e.g., Aspachs-Bracons et al., 2008; Hryshko et al., 2011; Milligan et al., 2004). Regarding extracurricular activities outside school, the coefficient of *Social capital* is also positive and statistically significant in all columns. This implies that social participation extends personal relationships in society and thereby leads children to have more diverse views about society. In addition to the quality of education, we also investigate the effect of the quantity of education (*Schooling years*). In all columns, we observe a significant and positive sign for *Schooling years,* which suggests that CSR preferences depend on the quantity as well as the quality of education. Even though not reported in the panel, the mother's and father's educational attainments are controlled for, although they do not have any significant effect. *Brothers* and *Sisters*

have a positive and statistically significant sign in columns 1-3. Hence, learning from siblings possibly affects preference formation. The coefficients for *Sisters* are almost the same as those for *Brothers,* suggesting that the effects of siblings do not differ with their genders.

We see from panel B that the coefficient estimates for *Female teacher years* are similar to those in panel A. On the other hand, in panel C, *Female teacher year* is not statistically significant in columns 2 and 3, although it is significantly positive in columns 1 and 4. Comparing panels B and C, we see that the presence of a female teacher consistently influences male pupils to prefer CSR regardless of the CSR proxies (*ESG, Governance, Environment,* and *Social*), while the female teacher's influence on female pupils is observed only for *ESG* and *Governance* but not for *Environment* and *Social.* However, the magnitude of the *Governance* coefficient is the same regardless of the pupils' gender. Furthermore, in the *Governance* regression estimation*,* the *Female teacher years* coefficient is 0.03 for both male and female respondents, showing the female teacher's effects are the same regardless of the pupils' gender.

5.2. Closer examination

For closer examination, *Female teacher years* is divided into lower and higher grades and its results are presented in Table 3. In this table, all the independent variables other than *Female teacher years* are the same as in Table 2, but not all the results are reported for the sake of space.

Let us first examine columns 1-3. In Panel A, where the full sample is used, it is interesting to observe that *Female teacher years in low grade* shows a significant and positive sign, while *Female teacher years in high grade* does not show statistical

significance. Therefore, the effect of a female teacher's class on pupils is observed only in the lower grades for *Environment* and *Social*. On the other hand, the results for *Women* are similar to those in Panel A in Table 2, showing there is a gender difference in CSR for *Environment* and *Social*. The full sample and the men's sub-sample results are consistent with Figure 1. As for the results based on the female respondents sub-sample, Panel C, neither *teacher years in low grade* nor *teacher years in high grade* show statistical significance. Therefore, a female teacher does not influence the same gender pupils' preferences for *Environment* and *Social* at all. We interpret the combined results of Panels B and C in Table 3 as follows: women assign more importance to y a firm's responsibility to the environment and the local community than men, which is a natural trait rather than a result of learning from a teacher. On the other hand, due to the men's lower level of CSR preferences for these issues, there is room to positively influence men's CSR preferences through the effects of female teachers. The combined results from Panels A-C support our hypothesis.

Analyzing column 4 where the dependent variable is *Governance* in Panels A-C, the female teacher's class has a significant effect on *Governance* regardless of grades, although the *Female teacher years in high grade* coefficient is 0.02 which is smaller than 0.03 (*Female teacher years in low grade*). However, the *Women* results do not show statistical significance; therefore, there is no difference between male and female respondents. It is interesting to observe that results based on both male and female respondents' sub-samples in Panels B and C are almost the same as those of Panel A. That is, a female teacher leads pupils to prefer *Governance* not only for different-gender but also for same-gender students. In addition, the female teacher's effects continue to be found in the higher grades although they become weaker. We should carefully consider

that, because class assignment is not purely randomly determined. However, the result suggests that a female teacher influences more mature students and the preference for *Governance* is formed not only through infant experience but also through social experience at the more mature stage.

There is one possible explanation for the fact that female teachers in both low and high grades make a significant contribution to forming pupils' preferences for *Governance* regardless of the pupils' genders. The mechanism of the *Governance* preference formation is considered to differ from that of *Environment* and *Social*. Pupils engage in personal interaction by mingling with classmates, which leads them to understand the importance of *Social*. Pupils are also able to directly observe the environment around them, which leads them to intuitively recognize its importance. On the other hand, *Governance* is a matter of organizational management, which is more complicated for pupils to understand than *Environment* and *Social*. Pupils have to understand the notion of organization to have a view about the importance of governance. That is, experience at the mature stage is also an important factor in determining *Governance*. This inevitably causes the results for *Governance* to differ from *Environment* and *Social*. The reason for statistical significance of the female teacher's class not only for the men's sample but also for the women's sample will be examined in the future studies, as further investigation of this topic is beyond the scope of this paper.

Table 4 focuses on the effect of female teacher class in each grade when ESG is the dependent variable. Key variables are the dummies for a female teacher class in each grade. If pupils are assigned to a female teacher class and match well with the teacher, they might be assigned to a female's class again in the next grade. Hence, there is a possibility for a selection bias in the subsequent grades. On the other hand, as mentioned

earlier, pupils are randomly assigned to a female teacher class in first grade. The class assignment of pupils is determined before they enter elementary school and the possible compatibility between teachers and pupils is not considered at all. New pupils and their parents are not allowed to choose a class teacher and they cannot know the gender of their class teacher before the entrance ceremony. Therefore, the effect of *Female teacher in 1st year* is unlikely to suffer from a selection bias. *Female teacher in 1st year* is considered to capture the effect of a female teacher's class in the quasi-natural experiment setting. Hence, in Table 4, we focus our attention to the result from *Female teacher in 1st year.*

In Table 4, the results when all 6 grade dummies are included as independent variables together are reported in column 1 in each panel. However, there seems to be a multicollinearity problem among the dummies. For robustness check, in addition to *Female teacher in 1st year,* we include the other grade dummies separately in alternative specifications. In Panel A, *Female teacher in 1st year* shows a positive and significant sign in all columns except for columns 1 and 3. Further, the coefficient of *Women* has a significant and positive sign in all columns. In most columns, the coefficient of *Women* is 0.05 on the-5 point scale, which is equivalent to the value of *Female teacher in 1st year.* That is, assignment to a female teacher class in first grade of elementary school is as important as natural tendencies in explaining gender difference in ESG.

Focusing on the sub-sample results, Panel B of Table 4 shows that only *Female teacher in 1st year* shows a statistically significant and positive sign in all columns. Further, the coefficient is 0.07 and does not change across the different specifications. Hence, the effect of *Female teacher in 1st year* can be considered robust. Apart from column 1, with the exception of *Female teacher in 2nd year*, a female teacher's class in lower grades produces a positive and statistical significant sign. Overall, under a natural

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experimental setting, assignment to a female teacher's class exerts a long-standing influence on male pupils' CSR preferences. On the other hand, in Panel C of Table 4, there is no significant signs at all. Hence, the effects of a female teacher class are only observed for different-gender pupils and the selection-bias-free effect in first grade is significant and sizable for the male respondents' sample.

As is argued earlier, the experimental setting of a random assignment to a female teacher's class can be justified only in first grade because the school cannot obtain information about pupils' characters before they enter school. The estimation results made it evident that the random matching of female teachers and male pupils in first grade leads male pupils to prefer ESG later in life. The *female socialization hypothesis* holds true for the formation of CSR preferences not only on the supply side (Cronqvist, and Yu. 2017), but also on the demand side.

6. Conclusion

An increasing number of studies examine the reason why companies' boards of directors emphasize the importance of CSR. It has been shown that women are more likely to exhibit prosocial preferences (e.g., Beutel and Marini, 1995; Adams and Funk, 2012). In the CSR literature, women's gender difference and effect on men have been explored (Cronqvist and Yu, 2017). However, the existing research analyzed the gender effect from the supply (firm) side of CSR. The corporate executives make decision in response to the demand for CSR. To consider the gender effect on CSR, it is necessary to analyze it from the demand (i.e., consumers and investors) side. This paper attempts to explore whether the female socialization hypothesis holds by considering how ordinary people's CSR

preferences form.

We collected individual-level data which contains CSR indices and the elementary school teacher's gender. In elementary school, especially in first grade, students are randomly assigned to teachers, because the school does not know the compatibility between a teacher and pupils. We conducted a quasi-natural experiment to explore the effect of teacher–pupil gender matching on stated CSR preferences in adulthood. We found that assigning pupils to a female teacher class in first grade leads them to prefer corporate responsibility later in life. The effects of a female teacher on preference formation are observed for different-gender pupils not but for the same-gender ones.

Based on our findings, we argue that the gender gap in adulthood can be reduced by matching female teachers with male pupils in earlier years. These findings support the female socialization hypothesis. As Dittrich & Leipold (2014) show, men tend to be impatient and choose to receive an immediate payment rather than a larger sum later. Men seem to put more focus on short-run profit maximization than women. To put it differently, women have a wider view about the firm's role in society than men do. However, paradoxically, women's view possibly results in larger profit in the long-run because CSR is vital to increase a firm's value in more developed societies. Interaction between the genders contributes to realizing not only an efficient but also a sustainable society.

CSR is an ambiguous concept and requires an analysis of its specific factors. We show that the teacher-pupil gender matching affects CSR preference formation differently depending on the specific measures. The mechanism of preference formation with respect to the firm's responsibility in improving governance is different from that of preference formation regarding the environment and society. However, it is not known yet how and why such differences exist. Furthermore, this paper does not analyze how female teachers

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in elementary school influence the top decision makers such as politicians and corporate executives regarding CSR issues. Such research should connect financial studies (the supply side) with educational economics (the demand side) and provide valuable policy implications. These remaining issues should be addressed in future works.

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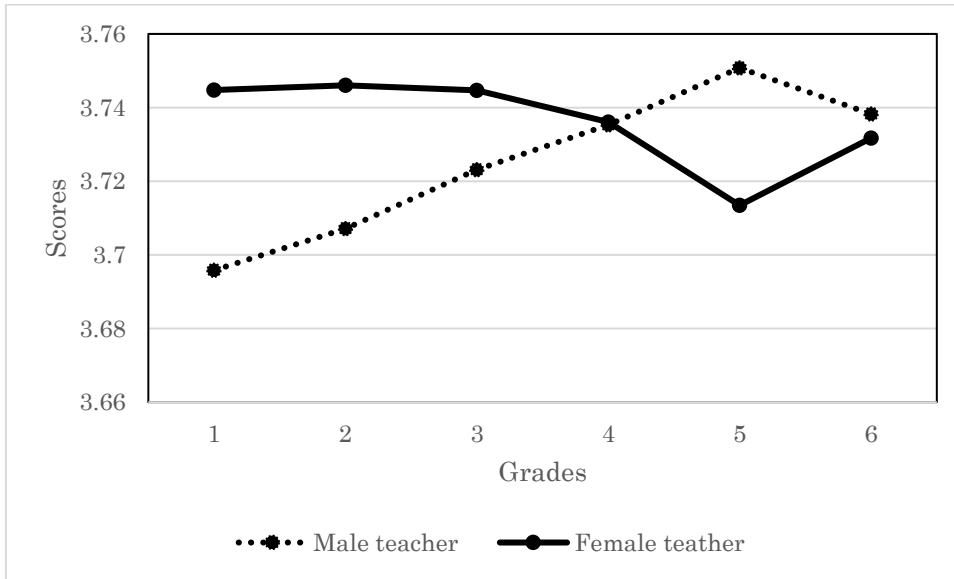
ESG
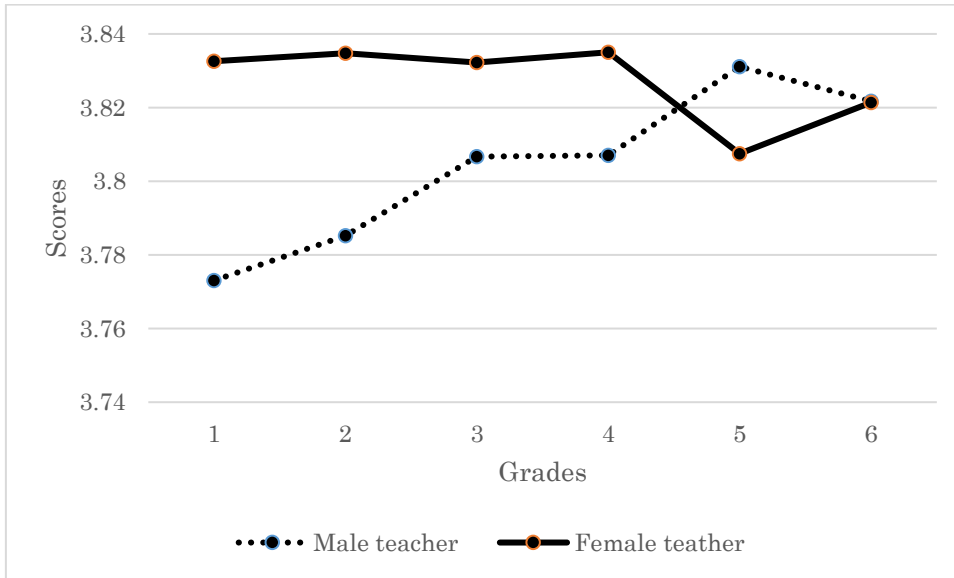
Environment
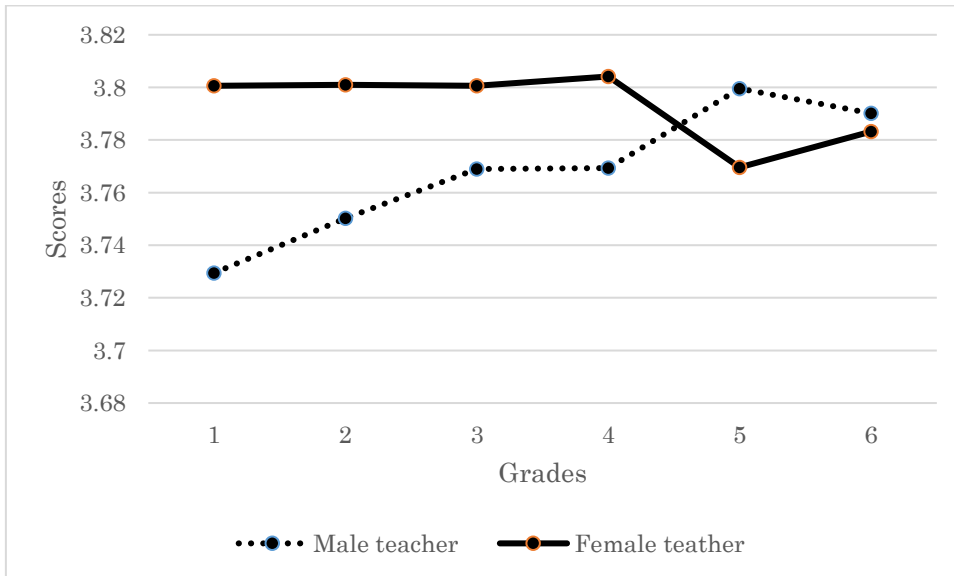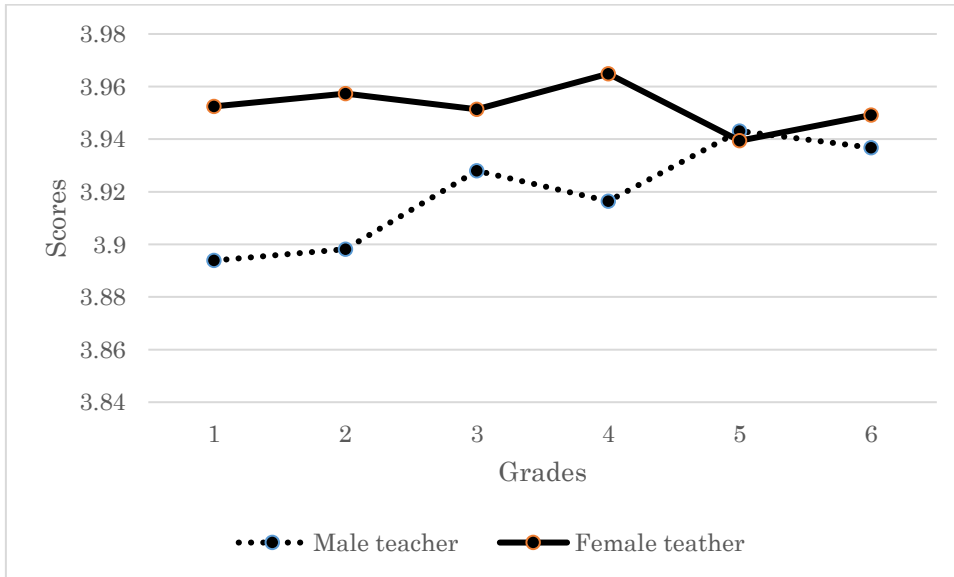
Social

Governance

Figure 1. CSR score in adulthood between people who belonged to women's and men's classes in each grade in elementary school
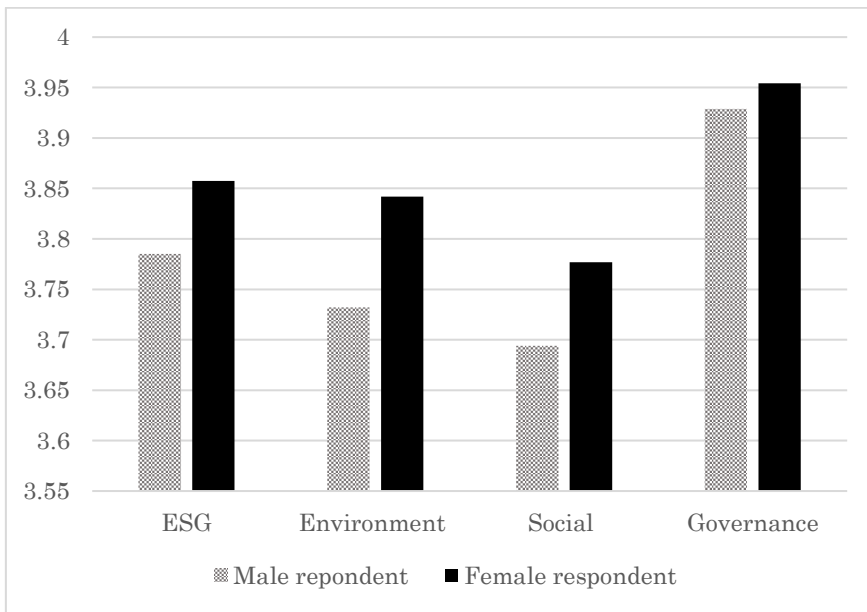
Figure 2. CSR comparison between male and female respondents

Variables	Definition	Mean	Standard deviation	Min.	Max.
ESG	(*Environment* + *Social* + *Governance*)/3	3.76	0.78	1	5
Environment	Do you agree that a firm should contribute to society by coping with environmental problems? 1 (strongly disagree) – 5 (strongly agree)	3.73	0.86	1	5
Social	Do you agree that a firm should contribute to society by participating in the local community? 1 (strongly disagree) – 5 (strongly agree)	3.68	0.85	1	5
Governance	Do you agree that a firm should be responsible for the transparency of its corporate governance? 1 (strongly disagree) – 5 (strongly agree)	3.88	0.87	1	5
Female teacher years	Number of years in a female teacher class during the 6 years attending elementary school,	3.44	1.50	0	6
Group learn	Equals 1 if there was a task in which pupils worked together as a group in elementary school, 0 otherwise	0.44	0.49	0	1
Competition	Equals 1 if the teachers ranked the finishing order in running races at elementary school, 0 otherwise	0.87	0.32	0	1
Social capital	Degree of participation in community activities as an elementary school pupil 1 (not at all), 2 (only participated in main community events), 3 (participated in all community events)	2.06	076	1	3
Schooling years	Number of schooling years	14.7	1.95	6	18
Age	Respondents' age	43.6	12.7	18	67
Brothers	Number of brothers	0.66	0.72	0	6
Sisters	Number of sisters	0.66	0.72	0	6
Women	Equals 1 if the respondent is a woman, 0 otherwise	0.50	0.50	0	1

Table 1. Definitions of key variables and their basic statistics
Note: Apart from the job dummies indicated, 13 other job dummies were included in the estimation model: (1) Chief executive officer, (2) Temporary employee, (3) Public officer, (4) Specialists (lawyers, accountants), (5) self-employment, (6) SOHO (Small Office Home Office), (7) Part-time worker, (8) Outside worker, (9) House worker, (10) University student , (11) High-school student, (12) No job or retired, (13) Other worker.

Panel A: Full sample

	(1) ESG	(2) Environment	(3) Social	(4) Governance
Female teacher years	0.02*** (3.09)	0.02** (2.58)	0.01* (1.94)	0.02*** (3.61)
Group learn	0.05*** (2.85)	0.04** (2.13)	0.08*** (4.02)	0.03 (1.41)
Competition	0.13*** (4.03)	0.12*** (3.32)	0.09** (2.43)	0.18*** (5.06)
Social capital	0.08*** (6.35)	0.07*** (5.21)	0.10*** (7.25)	0.06*** (4.43)
Schooling years	0.03*** (4.78)	0.03*** (4.52)	0.02*** (2.77)	0.03*** (5.33)
Age	0.004 (0.73)	−0.01 (−0.94)	0.01 (1.45)	0.01 (1.42)
Age square	0.0001 (1.62)	0.0002*** (3.10)	0.00004 (0.59)	0.00004 (0.58)
Brothers	0.03** (2.17)	0.02* (1.71)	0.04*** (2.77)	0.02 (1.30)
Sisters	0.03** (2.01)	0.03* (1.79)	0.04*** (2.74)	0.01 (0.87)
Women	0.05** (2.41)	0.10*** (3.77)	0.06** (2.26)	0.01 (0.35)
R-squared	0.09	0.08	0.08	0.08
Observations	6,897	6,897	6,897	6,897

Panel B: Male respondents

	(1) ESG	(2) Environment	(3) Social	(4) Governance
Female teacher years	0.02** (2.56)	0.02** (2.14)	0.02* (1.78)	0.03*** (2.75)
Group learn	0.05* (2.00)	0.04 (1.28)	0.09*** (2.88)	0.03 (1.06)
Competition	0.18*** (4.07)	0.18*** (3.60)	0.10** (2.09)	0.26*** (5.21)
Social capital	0.08*** (4.24)	0.08*** (3.61)	0.12*** (5.57)	0.04* (1.92)
Schooling years	0.02*** (2.60)	0.02*** (1.85)	0.01 (1.23)	0.02*** (2.76)
Age	−0.0004 (−0.05)	−0.02* (−1.75)	0.01 (0.86)	0.01 (0.71)
Age square	0.0002* (1.69)	0.0004*** (3.22)	0.0001 (0.48)	0.0001 (0.76)
Brothers	0.04** (2.42)	0.03 (1.66)	0.06*** (3.18)	0.03 (1.51)
Sisters	0.03 (1.41)	0.01 (0.63)	0.04** (2.15)	0.02 (0.96)
R-squared	0.12	0.10	0.10	0.10
Observations	3,486	3,486	3,486	3,486

Panel C: Female respondents

	(1) ESG	(2) Environment	(3) Social	(4) Governance
Female teacher years	0.02* (1.82)	0.01 (1.34)	0.01 (0.92)	0.03** (2.58)
Group learn	0.05* (1.81)	0.04 (1.57)	0.07** (2.52)	0.02 (0.82)
Competition	0.08* (1.74)	0.07 (1.36)	0.07 (1.37)	0.10* (1.95)
Social capital	0.08*** (4.54)	0.07*** (3.63)	0.09*** (4.50)	0.08*** (4.21)
Schooling years	0.03*** (4.42)	0.04*** (4.02)	0.03*** (2.95)	0.05*** (5.14)
Age	0.008 (0.93)	0.004 (0.42)	0.01 (1.14)	0.01 (0.95)
Age square	0.0001 (0.71)	0.0001 (1.12)	0.0004 (0.38)	0.0001 (0.40)
Brothers	0.01 (0.55)	0.01 (0.60)	0.01 (0.59)	0.01 (0.31)
Sisters	0.03 (1.59)	0.04** (2.00)	0.04* (1.79)	0.01 (0.56)
R-squared	0.11	0.10	0.09	0.10
Observations	3,501	3,501	3,501	3,501

Table 2. Estimation results of the baseline model (equation 1)

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. T-values are calculated based on robust standard errors clustered by prefectures. In all columns, various control variables such as job dummies, father's and mother's educational attainment dummies, current residential prefecture dummies, residential prefecture dummies when the respondent was 6 years old, and a constant are included. However, these estimates are not reported.

Panel A: Full sample

	(1) ESG	(2) Environment	(3) Social	(4) Governance
Female teacher years in low grade	0.03** (2.57)	0.03** (2.36)	0.02* (1.93)	0.03** (2.45)
Female teacher years in high grade	0.01 (1.57)	0.01 (1.09)	0.01 (0.72)	0.02** (2.37)
Women	0.05** (2.38)	0.09*** (3.74)	0.06** (2.23)	0.01 (0.34)
R-square	0.10	0.09	0.08	0.08
Observations	6,897	6,897	6,897	6,897

Panel B: Male respondents

	(1) ESG	(2) Environment	(3) Social	(4) Governance
Female teacher years in low grade	0.03** (2.44)	0.04** (2.42)	0.03** (2.04)	0.03* (1.81)
Female teacher years in high grade	0.01 (0.97)	0.01 (0.43)	0.01 (0.36)	0.02* (1.78)
R-square	0.12	0.10	0.10	0.10
Observations	3,486	3,486	3,486	3,486

Panel C: Female respondents

	(1) ESG	(2) Environment	(3) Social	(4) Governance
Female teacher years in low grade	0.01 (0.98)	0.01 (0.47)	0.001 (0.38)	0.03* (1.76)
Female teacher years in high grade	0.02 (1.47)	0.02 (1.28)	0.01 (0.83)	0.02* (1.80)
R-square	0.11	0.10	0.09	0.10
Observations	3,501	3,501	3,501	3,501

Table 3. Estimation results of the model with female teacher years split into low and high grades

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. T-values are calculated based on robust standard errors clustered by prefectures. In all columns, the same set of independent variables are included as in Table 2. However, these estimates are not reported.

Panel A: Full sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female teacher in 1st year.	0.04 (1.40)	0.05** (2.05)	0.03 (1.32)	0.04* (1.93)	0.05** (2.08)	0.05** (2.06)	0.05** (2.09)
Female teacher in 2nd year.	0.02 (0.79)		0.02 (1.00)				
Female teacher in 3rd year.	0.01 (0.75)			0.03* (1.75)			
Female teacher in 4th year.	0.04* (1.88)				0.04** (2.45)		
Female teacher in 5th year.	−0.02 (−0.91)					0.005 (0.31)	
Female teacher in 6th year.	0.04 (1.51)						0.02 (1.35)
Women	0.05** (2.35)	0.05** (2.42)	0.05** (2.40)	0.05** (2.41)	0.05** (2.36)	0.05** (2.42)	0.05** (2.44)
R-square	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Observations	6,897	6,897	6,897	6,897	6,897	6,897	6,897

Panel B: Male respondents

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female teacher in 1st year.	0.07* (1.82)	0.07** (2.10)	0.07* (1.81)	0.06* (1.91)	0.07** (2.13)	0.07** (2.10)	0.07** (2.13)
Female teacher in 2nd year.	−0.04 (−0.11)		0.002 (0.09)				
Female teacher in 3rd year.	0.40 (1.30)			0.06** (2.04)			
Female teacher in 4th year.	0.04 (1.46)				0.05** (2.15)		
Female teacher in 5th year.	−0.04 (−1.34)					−0.01 (−0.37)	
Female teacher in 6th year.	0.05 (1.52)						0.03 (1.01)
R-square	0.12	0.10	0.10	0.10	0.08	0.10	0.08
Observations	3,486	3,486	3,486	3,486	3,486	3,486	3,486

Panel C: Female respondents

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female teacher in 1st year.	0.001 (0.04)	0.02 (0.63)	−0.002 (−0.06)	0.02 (0.62)	0.02 (0.65)	0.02 (0.66)	0.02 (0.66)
Female teacher in 2nd year.	0.04 (1.15)		0.04 (1.25)				
Female teacher in 3rd year.	−0.01 (−0.47)			0.01 (0.33)			
Female teacher in 4th year.	0.40 (1.49)				0.04 (1.57)		
Female teacher in 5th year.	0.01 (0.18)					0.02 (0.89)	
Female teacher in 6th year.	0.02 (0.46)						0.02 (0.91)
R-square	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Observations	3,501	3,501	3,501	3,501	3,501	3,501	3,501

Table 4. Effect of being in a female teacher class in each grade with ESG as the dependent

variable

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. T-values are calculated based on robust standard errors clustered on prefectures. In all columns, the same set of independent variables are included as in Table 2. However, these estimates are not reported.