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Abstract

Firms with a reputation as socially responsible may have an important cost advantage: If workers prefer their employer to be socially responsible, equilibrium wages may be lower in such firms. We explore this hypothesis, combining Norwegian register data with data on firm reputation collected by an employer branding firm. Adjusting for a large set of background variables, we find that the firm's social responsibility reputation is significantly associated with lower wages.

Keywords: Self-regulation, wage differentials, CSR.

JEL classification: C51, D21, D64, Q56

This paper has not been submitted elsewhere in identical or similar form, nor will it be during the first three months after its submission to the Publisher.

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Introduction

Voluntary approaches to environmental protection have gained increasing attention in the environmental economics literature. One such approach is corporate social responsibility (CSR): the phenomenon that private firms voluntarily make costly efforts to achieve social goals, or to avoid socially damaging consequences of their production activities, over and above what is required by government regulation. The social goals involved may be associated with environmental protection (such as pollution abatement or waste reduction measures), with workers' rights (safety, abstaining from child labor), or other social goals such as poverty reduction.[4]

Although the environmental impacts may be hard to assess, corporate social responsibility as a phenomenon appears to be widespread (Portney 2008). This can hardly be explained by the simplest economic textbook models: in a competitive market populated by *homo oeconomicus* agents, firms paying higher costs than necessary will typically be wiped out by more efficient competitors – regardless of whether the excessive costs were caused by wastefulness or by ethical motives. Recently, however, economists have offered several possible explanations of CSR (see Lyon and Maxwell 2008 for an excellent review). The most common explanation seems to be that customers may have ethical concerns, making them willing to pay more for the firm's products if the production process is viewed as ethically superior (e.g. Arora and Gangopadhyay 1995, Besley and Ghatak, 2007). Similarly, shareholders may be willing to accept lower returns on capital to ensure that the production is ethically defensible (Cullis et al., 1992, Baron 2007, 2009). In the present paper, however, we will focus on the idea that employees may care about the social responsibility of their employer (Frank 2004, Besley and Ghatak 2005, Heal 2005, Brekke and Nyborg 2008, 2010).

If a sufficiently large number of employees prefer their employer to be socially responsible, then this would, presumably, affect equilibrium wages. A worker with such a preference would, all else given,

[4] For discussions of CSR, see Benabou and Tirole (2010), Besley and Ghatak (2007), McWilliams and Siegel (2001).

strictly prefer a socially responsible to a socially irresponsible employer. With continuous preferences, this would imply that there exists some strictly positive wage differential such that even if the socially responsible firm offers a lower wage by this amount, the worker would still prefer the responsible employment alternative. Thus, this simple argument implies that we should expect that the going market wage is lower in firms believed to be more socially responsible .

To our knowledge, however, few empirical studies have looked at this. [5] One exception is Frank (2004), who used an employment survey among recent Cornell graduates in which respondents reported their current salary, type of job, and the name of their employer, and where he was able to combine this with university data on respondents' completed courses and exam grades. Frank then asked another sample (Cornell students) to rate firms and types of jobs according to their social responsibility. Controlling for sex, curriculum and academic performance, he found a large and statistically significant compensating salary differential, with professions and firms rated as less socially responsible earning substantially higher salaries. Interestingly, Frank (2004) also found that although the wage differential was of a similar magnitude for men and women, women were much more likely to be employed in socially responsible firms; which lead him to speculate that women's higher concern for socially responsible work might be one factor contributing to the prevalent wage differences between genders.

Our aim with the present study is to explore whether similar effects can be identified among Norwegian firms; more precisely, whether there is a negative association between a firm's reputation as socially responsible and the wage level of this firm's employees. Note that firm reputation might not correspond to firm behavior.[6] If the two differ, both could potentially affect wages: reputation may influence external social approval or sanctions faced by employees, as well as

[5] However, several authors have studied the relationship between wages and firms' profit versus non-profit status, with mixed results. See, e.g., Leete (2001), Mocan and Tekin (2003), Frank (2004).

[6] See Lyon and Maxwell (2011).

the firm's ability to recruit new employees; actual firm behavior may be of concern to current employees with inside information. In the current paper, we focus exclusively on the effects on firm reputation.[7]

Our data on wages, as well as several background variables such as education, gender, family status, geographical location and industry, originates from register data. Our data on firm reputation comes from surveys conducted by the international, Swedish-based employer branding firm Universum. This strategy yields a data set with observations for more than 100,000 full-time employees.

The analysis suggests that after controlling for a large number of background variables, there is a substantial and statistically significant negative effect of CSR reputation on wages. This effect, however, is mainly present for men, a fact which is at least partly due to a correlation between CSR reputation and firms' gender equality policies.

Thus, a reputation as socially responsible may provide firms with a cost advantage, possibly allowing such firms to survive even with fierce market competition – and even in the absence of ethical consumers and/or ethical investors.

Data on firm reputation

Universum[8] is an international employer branding firm, specializing in providing advice to firms on how to attract the firm's preferred potential employees. As a part of this work, Universum conducts several surveys each year in a number of countries. In Norway, Universum conducts two annual surveys: the Young Professionals Survey, conducted among recently graduated young professionals,

[7] There is a literature on the link between firms' actual social behavior, e.g. green production, and their economic performance (for example, Telle 2006), but these studies typically do not focus on wage levels. Cole et al. (2009), using UK data, found a small wage premium for working in a polluting industry; these results could, however (as the authors do), be explained by workers' increased health risks when exposed to pollution. For studies on the relationship between CSR and financial performance see, e.g., Waddock and Graves (1997), McWilliams and Siegel (2000).

[8] See http://www.universumglobal.com/Startpage.aspx.

and the Graduate Student Survey, conducted among advanced students in economics, business, engineering/natural science, IT and law. Universum has provided us with access to the data from four of their surveys: the Young Professionals studies from 2006 and 2007 (NOYP2006, 4376 respondents; NOYP2007, 4208 respondents) and the Graduate Student Surveys from the same years (NOGS2006, 3459 respondents; NOGS2007, 4240 respondents). The questions are roughly, but not completely, identical between these two surveys and between years. Respondents in these surveys are obviously not representative of the entire Norwegian population, being relatively young and with higher education, while the register data (see below) comprises a considerably broader part of the population. How this might affect our results is hard to say.

Universum does not directly elicit data on firms' CSR records. Instead, respondents are asked to report up to five "ideal" employers from a list; that is, those firms on this list that the respondent would most prefer to work for.[9] The respondents are then asked whether they associate a number of characteristics with each of these up to 5 firms.[10] "Corporate social responsibility" is one of those characteristics.

Thus, for each respondent we have at most one yes/no answer to the question of whether the respondent associates this firm with CSR.[11] The procedure implies a selection issue in our CSR data: Every observation comes from a respondent who has chosen this particular firm as one of his/her favorite potential employers. Moreover, we have no CSR reputation data at all from those firms who

[9] If the respondent has reported to be familiar with less than six companies on the provided list: "Now choose the company/companies you would like to work for more than any other". Otherwise: "Now choose 5 companies you would like to work for more than any other".

[10] "What do you associate with these companies? (Please select as many alternatives as are applicable.)" The complete list of company's characteristics includes: Competitive working environment, Conservative working environment, Dynamic organization, Good/confidence-inspiring management, Exciting products/services/customers, Financial strength, Good reputation at my school, Equality between the sexes, High ethical standards, Innovation, Market success, Recruiting only the best, Strong corporate culture, Diverse/multicultural employees, Corporate social responsibility, Excessive overtime.

[11] Since the format of the question is to tick a box if one associates a characteristic with the firm, a "no" is hard to distinguish from a missing response.

are not on Universum's list. This list is intended as a list of the most popular employers, and firms may be included in or precluded from the list from year to year according to how often it is chosen as an ideal employer among respondents (there is an open response alternative, allowing for inclusion of new, popular employers). Even among the firms on the list, we have no CSR reputation observations for firms, if any, that are sufficiently unpopular to never have been picked as ideal employers at all.

Consequently, in our analysis we only include firms that have in fact been chosen as an ideal employer. This means, of course, that our sample consists of systematically more attractive employers than those firms that are not included. Since our hypothesis is precisely that CSR is one feature improving the attractiveness of an employer, one must consider potential endogeneity problems arising from this: If an employer were attractive only because of its CSR reputation, we might not find any effect of CSR reputation at all in our data, since we would have eliminated all relevant variation in the CSR variable in the very data selection process. Since there may be a multitude of reasons for an employer's popularity, we still believe that our data can be used in a potentially interesting way. The crucial question for whether our results may be expected to hold even for less popular firms is whether the relationship between wage and CSR reputation is different for popular than for unpopular firms. We see no obvious *a priori* reason why this would be the case; however, the reader should bear in mind that our sample is selected in a special way.

The central CSR reputation indicator used in our analysis is *the relative CSR score*, defined as the number of respondents who have reported to associate this firm with CSR divided by the number of respondents choosing this firm as an ideal employer. That is, we use as our reputation measure the share associating the firm with CSR among those who actually did choose that firm.[12] We will not provide a more precise interpretation of the term *CSR* here; our CSR reputation indicator is simply

[12] An alternative would be to use an absolute CSR count; however, if CSR is not the most important characteristics for choosing ideal employers, this would imply that if two firms A and B have the same CSR reputation, but A is more popular due to e.g. high salaries or prestige, A would receive a higher score.

based on respondents' subjective perception of the concept, which we have no further information about. Unfortunately, we are not able to merge the Universum data with the register data on an individual level.

As indicated above, the data generating process for the relative CSR score implies that we will systematically have more CSR reputation observations from popular employers. Since the relative CSR score is an aggregate indicator, and the number of observations used to calculate each firm's relative CSR score depends on the firm's popularity, our CSR reputation indicator will be more imprecise (based on less information) for less popular firms. To avoid extreme observations generated by this procedure, we have excluded companies chosen as ideal employers by less than four survey respondents.[13]

In Universum's survey data, respondents report their views on several company characteristics in addition to CSR. We chose to use a subset of these, excluding characteristics we believe to be directly related to wage determination (the latter to avoid endogeneity problems). The included variables are *Conservative working environment*, *Dynamic organization*, *Good/confidence-inspiring management*, *Good reputation at my school*, *Equality between the sexes*, *Innovation*, and *Corporate social responsibility*. For these variables, we have constructed relative firm reputation indicators corresponding to the relative CSR score explained above.

The register data

We have merged the relative CSR scores derived from the Universum survey with the official Norwegian linked employer-employee register with cash wages for 2007.[14] For each registered employment record of all individuals in Norway, we have reliable data on taxable annual labor

[13] A robustness check revealed that increasing this number to e.g. eight did not cause substantial changes in our estimates.

[14] The employment register provides the employer's identification number, which we use to link with our CSR reputation data.

income, employment duration and industry classification. One problem with this data is that hourly wages are not recorded, only total annual income and whether or not employment is full- or part-time. In the present study, we include only recorded full-time employment, and only records with yearly cash wage above 200,000 NOK.[15]

The employer-employee register, now linked with CSR reputation data, is then further merged with demographic register data, which provides information about each employee's date of birth, gender, marital status, region of living, educational attainment, immigrant status and citizenship. We restrict our sample to the age span 25 to 67.

We also have at our disposal another register data set of yearly wage statistics for employees of a large selection of private companies in Norway. This register data provides information on occupation type for each employee as per 1st October 2007.[16] Although this data set covers only private companies, we have used this information on occupation types together with the merged employer-employee register to perform further robustness checks on the effect of CSR reputation on wages. Appendix tables A1-A2 provide concise statistics of our analyzing samples.

Empirical modeling

The general modeling framework is very simple and straightforward, and is based on an OLS regression of log wage on regressors.[17] The relative CSR score is the main variable of interest in this context.[18]

[15] To make sure that only full time employees are included, we only include job registers expanding the entire calendar year. Second, we include only those registered with 100% positions in the employment register,. Finally, the restriction of yearly cash wage above 200,000 NOK was added to minimize the possibility that results are driven by register errors in job duration or position percentage.

[16] Based on International Standard Code for Occupation (ISCO) by International Labour Organization (ILO), see http://www.ilo.org/public/english/bureau/stat/isco/index.htm for details.

[17] The log wage regression mimics a Mincerian model, see Heckman et al. 2006 and Lemieux 2006 for discussions of Mincer style wage regression analysis.

Let W_{ij} denote the annual cash wage for a worker *i*who is employed by company *j*. Let vector X_i denote worker *i*'s observable characteristics, while Z_j denotes corporate *j*'s characteristics. We effectively model the log wage equation as

$$\ln W_{ij} = \beta_0 + \beta_1 X_i + \beta_2 Z_j + \beta_3 CSR_j + \varepsilon_{ij}$$

where CSR_j is firm *j*'s relative CSR score and ε_{ij} is an error term. [19]

If workers do care about corporate social responsibility and are willing to sacrifice wage for working in these companies, we would expect a significant, negative coefficient β_3 associated with our CSR reputation variable. The error term ε_i implies a potential heteroskedacity problem, since error terms for observations within the same company are likely to be correlated. On the other hand, it seems reasonable to assume that error terms across companies are independent. Thus, we have clustered on the company identifiers derived from NOYP and NOGS to produce robust standard errors of estimates.[20]

[18] In NOYP, respondents report current hourly wages and also whether they associate their *current* employer with CSR. This data cannot be merged with the individual level register data, but one could perform a regression of log hourly wage on a dummy indicator of CSR using only the NOYP survey data (neither NOGS nor register data). Preliminary analysis using this approach did not reveal any clear relationships between wage and CSR. This approach reduces the size and scope of the dataset considerably, however: NOYP 2006 and NOYP 2007 regressions are based on self-reported wage data for 3362 and 3060 individuals, respectively, all of whom are highly educated within economics, business, engineering/natural science, IT or law. Our preferred approach comprises about 109,000 officially registered wage observations, including all types of employees in firms for which we have CSR reputation data.

[19] Since we only include full-time employees, each worker has only one employer. The notation thus does not indicate that *i* may have several employers, but that firm characteristics are relevant only for that firm *j* which is indeed *i*'s employer. Recall also that the relative CSR score is observed on the firm level (although based on survey data), not on the individual level.

[20] We conducted standard White tests which did confirm the existence of heteroskedacity. The *robust standard errors* are obtained by applying the *vce(cluster companyid)* option in Stata.

Since the employment register data only contains yearly wage[21] and not hours worked during the year, we perform the OLS of log yearly wage on regressors. We have to our disposal the four sets of relative CSRs derived from four surveys. Since we have few CSR observations for some firms (see the discussion of the survey data above), and since there might be time lags between changes in firm reputation and wages, we choose to combine all four sets of relative CSR scores to form a combined firm reputation indicator from these four surveys. This combined relative CSR score data is then merged with 2007 employer-employee register data to perform wage regression. The crude samples from NOYP and NOGS contain about 100-150 companies each. [22] The range of our relative CSR score is from 0 to 0.69 in the estimation sample[23].

We first estimate a simple model with only demographic information, such as age, gender, family status, education attainment etc, and relative CSR score. We then gradually introduce other control variables, such as industry, , an interactive term of gender and relative CSR score, and other company characteristics. While Tables 1 and 2 report only coefficient on variables of main interest, more detailed results are provided in Appendix tables A4 and A5.We have performed regressions on all individuals, as well as separately on higher educated persons (with at least 13 years of education attainment).

We have deliberately chosen a simple econometric approach, making no explicit modeling attempts to handle, for example, possible selection problems in the CSR/wage framework. Our analysis is based on the hypothesis that there is indeed self-selection of workers (for example more idealistic

[21] The yearly wage statistics register we derive occupational information from, does contain contracted working hours per week and contracted cash wage per month, which in theory could be used to calculate hourly wage. The quality of this particular information seems rather poor, however, hence not providing an adequate basis for reasonably consistent measurement of hourly wage.

[22] Since the NOYP and NOGS have only partial overlap in which companies are included, the aggregated number of companies when combining NOYP and NOGS in the estimations below exceeds the numbers of companies in each survey separately.

[23] See Appendix tables A1-A3 for statistics on relative CSR, both for the estimation sample and the NOGS/NOYP surveys.

ones) into CSR firms. Adjusting for such self-selection would hence mask the very effect we are looking for. Nevertheless, there might be other self-selection effects biasing our results, for example if idealistic workers were also less competent. Our approach here is to use our very rich official register data to correct for observed differences in e.g. education, industry and age, and study whether there is still a significant wage loss in firms with a good CSR reputation. Like in any simple regression analysis, we cannot, of course, claim causal relationships.

Results

Table 1 presents our main results. The bold faced numbers are statistically significant at the 5% level. We conduct regressions of log yearly wage on relative CSR score and other variables. [24]

Model I is the basic model, with no controls for industries and corporate characteristics. An immediate observation is that compared to male workers, females have about 14% lower annual wage incomes. The estimate on relative CSR is -0.38 and statistically significant. That is, for otherwise similar firms and employees, a firm with relative CSR score of 1 (everyone choosing this firm as an ideal employer associates it with CSR) would be expected to pay 38 percent lower wages than a firm with relative CSR score of 0 (no-one choosing this firm associates it with CSR).

Frank (2004) found that women were substantially more likely than men to occupy jobs considered as socially responsible. If men and women relate differently to CSR, their wage differentials might also differ. Model II introduces an interactive term between female and corporate social responsibility. The estimated wage loss associated with CSR now increases to 42%, the coefficient still being statistically significant. The gender wage gap increases to about 19%. The interactive term of female with CSR is only weakly significant; note, however, that its coefficient is almost of the same magnitude as the gender gap.

[24] For brevity, our CSR reputation variable – the relative CSR score – is mostly called just "CSR" when presenting estimation results below. It should be kept in mind, however, that our data is concerned with firm reputation, not firm behavior.

In model III we add controls for industrial wage differentials, which reduce the coefficient for CSR to -0.24. This is to be expected, since some industries (e.g. health and care giving) presumably have a better reputation in terms of social responsibility than others (e.g. petroleum and mining).[25] The interaction term between female and CSR is now significant and substantial (a coefficient of 0.22), of the same magnitude as the gender effect (-0.21), and almost cancels out the entire CSR effect for females.

In model IV, we introduce the other corporate characteristics. The coefficient for CSR is now further reduced to -0.21, indicating correlation between CSR and other attractive firm characteristics. The interaction term for female and CSR has a coefficient of 0.21, which means that for women, no wage loss is associated with CSR. Part of the explanation can perhaps be found looking at the coefficient for "Equality between the sexes", which is highly and significantly negative. It may simply be the case that CSR firms have less of a gender gap in wages than other firms. In fact, it turns out that the correlation coefficient between the CSR and gender equality indicators is as high as 0.36.

We have thus also included an interaction term between female and Equality between the sexes in model V. This term is substantial and significant, meaning that while all employees experience a wage loss by working in firms with gender equality, this loss is considerably smaller for females. Its inclusion decreases the CSR coefficient to -0.18, but also decreases the magnitude of the interaction term for female*CSR. Model V indicates that while men experience a wage loss of 18% by working in a firm with CSR score of 1 rather than 0, women's corresponding wage loss is only about 6%.

Model VI estimates on the higher educated workers with educational attainment above high school (college and university degrees). Here, the variable "good reputation at my school" becomes significant; the wage loss from gender equality seems to be the same for men and women, while

[25] Note, however, that we use rather broad industry categories here; see the Appendix.

men again experience a substantially larger wage loss from CSR than women. The coefficient for CSR, however, is still negative, statistically significant, and quite substantial (-0.20).

Other coefficients are also rather robust across all model specifications (in Appendix Table A4). Taking the full model V, married males have a wage premium of about 6%; married women, however, have a wage loss of about 4.5%. Wage premia (relative to educational level at high school) increase with higher educational attainment above university level. Interestingly, immigrants as a whole do not experience a wage loss comparing to ethnic Norwegians, but immigrants from non-OECD countries suffer a wage loss as large as 23% in general.

Table 1: Estimation of merged employer-employee register data 2007 with combined CSR indicated from NOYP and NOGS. Public and private sectors.

Dependent variable log (wage > 200,000 NOK)	**I**	**II**	**III**	**IV**	**V**	**VI**
women	**-0.1428**	**-0.1913**	**-0.2074**	**-0.1957**	**-0.2334**	**-0.2181**
Corporate social responsibility	**-0.3848**	**-0.4229**	**-0.2415**	**-0.2071**	**-0.1828**	**-0.2014**
women*Corporate social responsibility		0.1360*	**0.2211**	**0.2051**	**0.1179**	**0.1701**
Conservative working environment				**0.3392**	**0.3579**	**0.2902**
Dynamic organization				-0.0769	-0.0775	-0.1364
Good/confidence-inspiring management				0.0776	0.0745	0.1008
Good reputation at my school				0.0593	0.0568	**0.1400**
Innovation				0.0427	0.0434	0.0058
Equality between the sexes				**-0.4094**	**-0.4812**	**-0.4000**
women*Equality between the sexes					**0.2537**	0.0859
controlled for industries	no	no	yes	yes	yes	yes
Number of observations	108916	108916	108916	108916	108916	77448
R^2	0.2505	0.2512	0.2894	0.3034	0.3422	0.1943

Notes: 1. Bold face indicates significance at 5% level. * indicates significance at 10% level. 2. We control for gender, age, education, immigrant status, region of residence in all models.

As mentioned above, we have access to another register data set providing information of each individual's type of occupation, although only for the private sector firms. To explore whether the above results on CSR related wage differentials could be due to job types, we also run estimations for private companies only, controlling for occupation categories. Results are provided in Table 2.

In model I, there are no controls for industries and occupations. The estimate for CSR is here on par with that of model II in Table 1, but with a significant, positive interactive term for women*CSR.

Alternately controlling for industries and occupations changes neither the signs nor significance of CSR and women*CSR (models II and III). Controlling for both industries and occupations, as well as company characteristics, has no substantial impact on the estimated coefficients for CSR and women*CSR (models IV, V, and VI).

Table 2: Estimation of merged employer-employee register data 2007 with combined CSR indicated from NOYP and NOGS. Private sector only.

Dependent variable log (wage> 200000 NOK)	**I**	**II**	**III**	**IV**	**V**	**VI**
women	**-0.2107**	**-0.2062**	**-0.2089**	**-0.1965**	**-0.1935**	**-0.1956**
Corporate social responsibility	**-0.3739**	**-0.2185**	**-0.2487**	**-0.1717**	**-0.2137**	**-0.1968**
women*Corporate social responsibility	**0.2372**	**0.2474**	**0.2488**	**0.2241**	**0.2243**	**0.2097**
Conservative working environment					**0.3560**	**0.3190**
Dynamic organization					-0.0434	-0.0836
Good/confidence-inspiring management					0.0659	0.0624
Good reputation at my school					0.1136	0.1631
Equality between the sexes					**-0.2997**	**-0.2871**
Innovation					-0.0088	-0.0451
controlled for industries	no	no	yes	yes	yes	yes
controlled for occupation	no	yes	no	yes	yes	yes
Number of observations	83412	83412	83412	83412	83412	58148
R^2	0.2693	0.3792	0.3013	0.4022	0.4124	0.3616

Notes: 1. Bold face indicates significance at 5% level. * indicates significance at 10% level. 2. We control for gender, age, education, immigrant status, region of residence in all models.

Our finding of a significant, negative coefficient for relative CSR thus seems robust across model specifications. However, this effect is mostly observed for men, even when we control for reported gender equality at the firm level and occupation types. On the basis of our data, this gender difference is hard to explain further; hence we are left to speculation.

One possibility is that since CSR and gender equality are highly correlated, their effects may be confounded in the analysis. Another explanation, however, is that women have different jobs than men: they are for example much more likely to have jobs concerned with nursing, caretaking and teaching. These jobs would perhaps be judged by many as socially responsible, but neither our CSR indicator, the education variables, nor the available occupational categories are fine-tuned enough to capture all such differences in job types.

Hence, it may actually be the case that there is a wage loss associated with CSR for females as well, but this is captured by the gender gap. In this respect, it is interesting to note that in most of our model specifications, the gender gap and the interaction variable female*CSR, measuring the difference between CSR's effect on men's and women's wages, are of opposite signs and roughly similar magnitudes. This interpretation would be roughly in line with Frank (2004), who estimated a CSR wage differential of a similar magnitude for men and women, but also found that women were much more likely to have 'responsible' employment than men.

Conclusions

If workers prefer socially responsible employment, all else given, then irresponsible employers must pay more to recruit equally qualified employees. Combining survey data on firm reputation with official register data on demographic and labor market variables, comprising wage observations for more than 100,000 full-time employees, we do find a negative, substantial, and statistically significant association between wage and CSR reputation among Norwegian firms.

However, this effect is mainly observed for men. This is partly, but not fully, explained by a high correlation between firms' CSR reputation and gender equality policies. One possible explanation is that due to strong gender differences in job types, not fully accounted for in our analysis, part of the social responsibility wage loss for women may be captured by the gender gap coefficient.

We conclude that firms associated with CSR do indeed have a cost advantage in terms of lower wage payments as compared to other firms. One implication is that even if social responsibility is associated with higher costs, for example in terms of higher emission abatement expenses, responsible firms may survive market competition – even in the absence of ethical consumers or investors. Since labor costs constitute a major cost component for most firms, this might well be of substantial importance when it comes to firm profitability.

Appendix: Supplementary tables

Table A1: Selected statistics of estimation sample for Table 1.

	Men		Women	
	mean	std	mean	std
Nobs	78910		30006	
married	0.5662	0.4956	0.4835	0.4997
immigrant	0.1333	0.3399	0.1242	0.3298
Non-OECD immigrant	0.0588	0.2352	0.0461	0.2097
immigrant with Norwegian citizenship	0.0704	0.2559	0.0775	0.2674
age	43.8697	10.3068	42.9749	10.1650
Corporate characteristics				
Conservative working environment	0.1587	0.1053	0.1819	0.1293
Dynamic organization	0.2970	0.1182	0.2980	0.1376
Good/confidence-inspiring management	0.4001	0.1118	0.4101	0.1017
Good reputation at my school	0.4538	0.1505	0.4512	0.1457
Equality between the sexes	0.2302	0.1244	0.2859	0.1213
Innovation	0.3905	0.1663	0.3619	0.1832
Corporate social responsibility	0.3325	0.1812	0.3799	0.1829
Education	frequency	percentage	frequency	percentage
< = 9 yrs	8753	11.09 %	2685	8.95 %
10-12 yrs	13098	16.60 %	6932	23.10 %
13-16 yrs	40193	50.94 %	13943	46.47 %
> = 17 yrs	16866	21.37 %	6446	21.48 %
Industries				
Manufacture	17470	22.14 %	3856	12.85 %
Electricity	2547	3.23 %	612	2.04 %
Construction	10946	13.87 %	859	2.86 %
Commerce and Service	5356	6.79 %	2770	9.23 %
Transport and Postal Service	11814	14.97 %	6448	21.49 %
Finance and Service	21547	27.31 %	9157	30.52 %
Public Sector Health Care Administration	4484	5.68 %	5177	17.25 %
Oil and Gas	4746	6.01 %	1127	3.76 %

Note: 1. The statistics are from the sample where we combine all CSR from NOYP and NOGS (2006-2007) and merged with 2007 employment register data. 2. Some variable declarations: *immigrant*: persons with immigrant background from all countries; *non-OECD immigrant*: persons with immigrant background from non-OECD countries; *immigrant with Norwegian citizenship*: immigrants that have acquired Norwegian citizenship, regardless countries of origin; *Education*: defined as years of educational attainment; *industries*: based on NACE rev 2. classification codes of economic activities. 3. Tables reporting standard errors can be obtained from the authors.

Table A2: Selected statistics of estimation sample for Table 2.

	Men		Women	
	mean	std	mean	std
Nobs	61871		21541	
married	0.5643	0.4958	0.4775	0.4995
immigrant	0.1343	0.3410	0.1246	0.3303
Non-OECD immigrant	0.0631	0.2431	0.0474	0.2124
immigrant with Norwegian citizenship	0.0712	0.2571	0.0773	0.2671
age	43.6997	10.2048	42.7671	10.0597
Corporate characteristics				
Conservative working environment	0.1382	0.0814	0.1356	0.0784
Dynamic organization	0.3164	0.1134	0.3374	0.1285
Good/confidence-inspiring management	0.4118	0.1084	0.4145	0.1050
Good reputation at my school	0.4637	0.1484	0.4647	0.1489
Equality between the sexes	0.2243	0.1240	0.2732	0.1242
Innovation	0.4115	0.1499	0.4045	0.1635
Corporate social responsibility	0.3154	0.1647	0.3378	0.1641
Education	frequency	percentage	frequency	percentage
< = 9 yrs	6944	11.22%	1982	9.2%
10-12 yrs	10792	17.44%	5546	25.75%
13-16 yrs	31967	51.67%	9932	46.11%
> = 17 yrs	12168	19.67%	4081	18.95%
Industries				
Manufacture	14178	22.92%	3206	14.88%
Electricity	2379	3.85%	578	2.68%
Construction	8751	14.14%	688	3.19%
Commerce and Service	4344	7.02%	2178	10.11%
Transport and Postal Service	10696	17.29%	6098	28.31%
Finance and Service	17774	28.73%	7802	36.22%
Health Care Administration	83	0.13%	49	0.23%
Oil and Gas	3666	5.93%	942	4.37%
Occupations				
Legislators, senior officials and managers	6833	11.04%	2194	10.19%
Professionals	13948	22.54%	4658	21.62%
Technicians and associate professionals	15209	24.58%	5746	26.67%
Clerks	10113	16.35%	6744	31.31%
Service workers and shop and market sales workers	1093	1.77%	1109	5.15%
Craft and related trades workers	8976	14.51%	364	1.69%
Plant and machine operators and assemblers	5007	8.09%	550	2.55%
Elementary occupations	562	0.91%	127	0.59%
Unspecified	130	0.21%	49	0.23%

Note: 1. same definitions of variables as in Table A1,2. Occupation is defined as in the "International Standard Classification of Occupation ISCO-08".

Table A3: Selected statistics of corporate characteristics from combined NOGS and NOPY Surveys.

Number of corporations in estimation sample	174			
Corporate characteristics	mean	std	min	max
Conservative working environment	0.1515	0.1120	0	0.6000
Dynamic organization	0.2908	0.1289	0	0.6296
Good/confidence-inspiring management	0.3954	0.1207	0	0.8750
Good reputation at my school	0.4611	0.1683	0	0.8148
Equality between the sexes	0.2221	0.1297	0	0.6429
Innovation	0.3884	0.1966	0	0.9583
Corporate social responsibility	0.2777	0.1606	0	0.6923

Note: The corporate characteristics are calculated as the count of characteristics survey respondents reported to associate with the company, divided by the count of respondents who chose this company as his or her ideal employer. The statistics are conducted on estimation sample of that in Table 1.

Table A4: Estimation of merged employer-employee register data 2007 with combined CSR indicated from NOYP and NOGS. Public and private sectors.

Dependent variable log (wage > 200,000 NOK)	**I**	**II**	**III**	**IV**	**V**	**VI**
women	**-0.1428**	**-0.1913**	**-0.2074**	**-0.1957**	**-0.2334**	**-0.2181**
married	**0.0656**	**0.0665**	**0.0619**	**0.0605**	**0.0599**	**0.0738**
married women	**-0.0483**	**-0.0510**	**-0.0457**	**-0.0452**	**-0.0443**	**-0.0525**
immigrant	0.0300	0.0293	0.0083	0.0111	0.0125	-0.0055
non-OECD immigrant	**-0.2904**	**-0.2909**	**-0.2646**	**-0.2319**	**-0.2277**	**-0.1359**
immigrant with Norwegian citizenship	0.0346	0.0358	0.0499	0.0333	0.0309	0.0199
edu < = 9 yrs	**0.1301**	**0.1300**	**0.1216**	**0.1109**	**0.1114**	
edu 13-16 yrs	**0.1476**	**0.1476**	**0.1453**	**0.1332**	**0.1328**	
edu > = 17 yrs	**0.3596**	**0.3598**	**0.3461**	**0.3213**	**0.3214**	
age	**0.0543**	**0.0541**	**0.0531**	**0.0539**	**0.0539**	**0.0532**
age squared	**-0.0005**	**-0.0005**	**-0.0005**	**-0.0005**	**-0.0005**	**-0.0005**
Corporate social responsibility	**-0.3848**	**-0.4229**	**-0.2415**	**-0.2071**	**-0.1828**	**-0.2014**
women*Corporate social responsibility		0.1360*	**0.2211**	**0.2051**	**0.1179**	**0.1701**
Dynamic organization				-0.0769	-0.0775	-0.1364
Good/confidence-inspiring management				0.0776	0.0745	0.1008
Good reputation at my school				0.0593	0.0568	**0.1400**
Equality between the sexes				**-0.4094**	**-0.4812**	**-0.4000**
Innovation				0.0427	0.0434	0.0058
women*Equality between the sexes					**0.2537**	0.0859
controlled for industries	no	no	yes	yes	yes	yes
Number of observations	108916	108916	108916	108916	108916	77448
R^2	0.2505	0.2512	0.2894	0.3034	0.3422	0.1943

Notes: 1. Bold face indicates significance at 5% level. 2. We control for region of residence in all models. 2. Some variable declarations: *immigrant*: persons with immigrant background from all countries; *non-OECD immigrant*: persons with immigrant background from non-OECD countries; *immigrant with Norwegian citizenship*: immigrants that have acquired Norwegian citizenship, regardless countries of origin; *Education*: defined as years of educational attainment; *Industries*: based on NACE rev 2. classification codes of economic activities. 3. Tables reporting standard errors can be obtained from the authors.

Table A5: Estimation of merged employer-employee register data 2007 with combined CSR indicated from NOYP and NOGS. Private sector only.

Dependent variable log (wage> 200000 NOK)	**I**	**II**	**III**	**IV**	**V**	**VI**
women	**-0.2107**	**-0.2062**	**-0.2089**	**-0.1965**	**-0.1935**	**-0.1956**
married	**0.0652**	**0.0337**	**0.0619**	**0.0339**	**0.0341**	**0.0378**
married women	**-0.0451**	**-0.0303**	**-0.0421**	**-0.0295**	**-0.0311**	**-0.0377**
immigrant	-0.0148	-0.0164	-0.0281	-0.0231	-0.0194	-0.0089
non-OECD immigrant	**-0.2765**	**-0.1600**	**-0.2535**	**-0.1443**	**-0.1229**	**-0.0815**
immigrant with Norwegian citizenship	0.0700	0.0485	0.0778	0.0473	0.0346	0.0118
edu < = 9 yrs	**0.1260**	**0.0690**	**0.1111**	**0.0682**	**0.0627**	
edu 13-16 yrs	**0.1652**	**0.0910**	**0.1494**	**0.0889**	**0.0823**	
edu > = 17 yrs	**0.4013**	**0.2278**	**0.3641**	**0.2192**	**0.2052**	
age	**0.0501**	**0.0464**	**0.0505**	**0.0448**	**0.0456**	**0.0454**
age squared	**-0.0005**	**-0.0004**	**-0.0005**	**-0.0004**	**-0.0004**	**-0.0004**
Corporate social responsibility	**-0.3739**	**-0.2185**	**-0.2487**	**-0.1717**	**-0.2137**	**-0.1968**
women*Corporate social responsibility	**0.2372**	**0.2474**	**0.2488**	**0.2241**	**0.2243**	**0.2097**
Conservative working environment					**0.3560**	**0.3190**
Dynamic organization					-0.0434	-0.0836
Good/confidence-inspiring management					0.0659	0.0624
Good reputation at my school					0.1136	0.1631
Equality between the sexes					**-0.2997**	**-0.2871**
Innovation					-0.0088	-0.0451
controlled for industries	no	no	yes	yes	yes	yes
controlled for occupation	no	yes	no	yes	yes	yes
Number of observations	83412	83412	83412	83412	83412	58148
R^2	0.2693	0.3792	0.3013	0.4022	0.4124	0.3616

Notes: 1. Bold face indicates significance at 5% level. 2. We control for region of residence in all models. 2. Some variable declarations: *immigrant*: persons with immigrant background from all countries; *non-OECD immigrant*: persons with immigrant background from non-OECD countries; *immigrant with Norwegian citizenship*: immigrants that have acquired Norwegian citizenship, regardless countries of origin; *Education*: defined as years of educational attainment; *Industries*: based on NACE rev 2. classification codes of economic activities. 3. Tables reporting standard errors can be obtained from the authors.

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