



ANALYSIS OF THE RELATIONSHIP BETWEEN ESG AND LABOR COSTS: THE MODERATING EFFECT OF THE LEGAL TRADITION

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Abstract. This study examines the relationship between Environmental, Social, and Governance (ESG) scores and labor costs per employee (LCE) in firms operating under different legal traditions, specifically comparing civil law (France) and common law (United Kingdom) countries. Utilizing data from the Orbis database for the period 2020–2022, the study employs random-effects estimations with robust standard errors. Results indicate that while the relationship between ESG and LCE is not significant in common law, it is positively significant in civil law. Results are robust to alternative ESG measures, such as the social pillar score (SOCPL) estimations methods and samples. The findings suggest that the legal tradition moderates the ESG-LCE relationship, with stronger positive effects observed in civil law countries. The study highlights the importance of legal frameworks in shaping the economic impacts of ESG initiatives on labor costs. While ESG concerns may result in higher LCE, and thus increased employee compensation, implementing appropriate regulations to protect workers' rights can foster a more effective ESG-LCE relationship than relying solely on market-based regulatory systems driven by stakeholder influence.

Keywords: ESG, social pillar, labor costs, legal tradition, civil law, common law.

JEL Classification: M40, M54.

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1. Introduction

The academic community has shown significant interest in the scope, factors, and impacts of corporate social responsibility (CSR) initiatives. Recently, the term environmental, social, and governance (ESG) has been more frequently used in academic research, progressively replacing CSR concerning sustainability and responsible business practices. Therefore, in reviewing previous research, we use the term ESG to encompass the meanings that academic research and companies use interchangeably.

ESG development has surged in the last decades. The 17 Sustainable Development Goals (SDGs) issued by the United Nations highlight the global importance of such development. Some of these SDGs directly pertain to business firms' practices, such as Goal 8, which addresses decent work and economic growth, and Goal 12, which focuses on responsible consumption and production. Legitimacy theory postulates that an organization has the responsibility

to comply with an implicit contract with the various stakeholders within the society it operates (Fernando & Lawrence, 2014). Therefore, organizations must implement ESG initiatives to meet the needs and expectations of their stakeholders and to legitimize their activities. The impact of sustainability on stakeholders, as well as on human resources practices, may, in turn, affect financial performance (Feng, 2021a, 2021b; Xu et al., 2025).

A substantial body of research examines the relationship between ESG and various business practices, with increasing interest in recent years. Most empirical research has focused on the relationship between ESG and different measures of corporate financial performance, both accounting and market-based (Velte, 2021). Other studies have explored the relationship between ESG and business practices such as the cost of debt, risk reduction, earnings management, information asymmetry, tax avoidance, and accounting conservatism, among others (Lagasio & Cucari, 2019; Gillan et al., 2021; Kovermann & Velte, 2021; Tsang et al., 2023). Additionally, the impact of ESG on employee-related aspects of business activity has been studied, considering employees as important stakeholders. These studies have analyzed the relationship between ESG and employee satisfaction, motivation, commitment, and recognition, among others (Macassa et al., 2021). The mediating or moderating effects of these employee characteristics on the relationship between ESG and corporate performance have also been investigated (Yoo et al., 2019).

However, the relationship between ESG and employee income or labor costs (LC) has received scant attention in previous studies, which is surprising given the significance of these costs in total organizational expenses. Despite the declining trend in the share of LC (Barkai, 2020; Facchini et al., 2017), Autor et al. (2020) document a share of 60 to 70% of value added in major OECD countries in 2010, such as the USA, Germany, France, Italy, Japan and the UK. The corresponding median labor shares range between 30 and 70% in the industries studied by Kaymak and Schott (2023). Argilés-Bosch et al. (2023) report a mean and median LC of 22.1 and 15.6% of firms' revenues, respectively in their sample of 173,342 firm-year observations of Spanish firms between 2002 and 2018.

Among the factors moderating or mediating the relationship between ESG and business practices, the legal system has garnered considerable attention (e.g., Harjoto et al., 2021; Monti et al., 2022; Zhang et al., 2021). As civil law countries rely on more compulsory rules and laws compared to common law systems, while managers in common law systems may enjoy greater discretion to prioritize shareholder interests, firms operating in civil law countries may be more inclined to translate regulatory commitments into tangible stakeholder benefits, such as higher employee wages.

The objective of this study is to empirically analyze the relationship between ESG and firms' LC and to examine the moderating effect of legal tradition on this relationship.

We contribute to ESG empirical studies, where, to the best of the authors' knowledge, few studies analyzed the relationship between ESG issues and firms' LC. While Xiao et al. (2022) focused on the relationship between environmental regulations and employee-income, Yuan and Wu (2024) and Zhang et al. (2024) explored sustainability and innovation, with limited attention to the relationship between ESG and LC. Sun and Yu (2015) focus on employee performance. To the best of the authors' knowledge, our study is the first to focus on the relationship between ESG and LC. Additionally, we contribute to the few existing studies on ESG and legal tradition, presenting the first empirical research analyzing the moderating effect of legal tradition on the relationship between ESG and LC. We contribute theoretical arguments supporting the relationship between ESG and LC, as well as the moderating effect of the legal framework, specifically the distinction between common and civil law systems. Despite

the widely acknowledged role of the legal system in shaping firms' economic outcomes, their influence on LC has yet to be empirically examined. Finally, we provide the first study with empirical evidence on this topic.

While we do not find a positive significant relationship between ESG or the specific social pillar score (SOCP) and LC per employee (LCE) across the overall sample, the relationship between ESG and LC is significantly moderated by the legal tradition. Specifically, while the relationship is generally non-significant in the UK, it becomes significant and positive in France. This indicates that the impact of ESG/SOCP on average wage costs per employee is more pronounced in civil law countries. The legal framework in civil law countries, characterized by more stringent labor protections and stakeholder-oriented policies, likely contributes to this effect. Firms in such countries may face stronger regulatory pressures and social expectations to adhere to ESG standards, leading to higher LCE. In contrast, the common law tradition prioritizes shareholder interests and provides more flexibility in labor practices. The results are robust to different estimations methods, subsamples and endogeneity analyses in most cases.

The remaining of the paper is organized as follows: the next section reviews literature and presents the hypotheses. This is followed by the formulation of the empirical model, and explanation of the data formation and sample. We then present the results and conclude with final remarks.

2. Literature review and hypotheses

As mentioned in the introduction, business research has extensively analyzed the relationship between ESG and a wide range of business phenomena, including different measures of financial performance and employee satisfaction or motivation. However, to the best of our knowledge, very few published academic studies have analyzed the relationship between ESG issues and LC. Xiao et al. (2022) focused on the effect of environmental regulations on the average wage of firm employees and found that environmental regulations are significantly related to lower employee income in China. This effect was more pronounced in provinces with more stringent regulations. The authors argue that the lower wages result from the need to compensate for the increasing costs incurred in meeting environmental issues, leading to financial constraints and cuts in LC. They applied a differences-in-differences analysis using a sample of treated firms (those located in provinces where the central government signed pollutant reduction measures with local governments) before and after the agreement and a sample of control firms located in provinces with no such agreements. They did not analyze the specific environmental accomplishments of these firms or other social or governance commitments.

Yuan and Wu (2024) analyzed the impact of China's environmental protection tax law on firms' ESG performance. Using a difference-in-differences analysis they found that Chinese law increased firms' environmental performance at the expense of a reduction in the social score. Moreover, they found that Chinese firms experienced an increase in production costs following this law, and a subsequent decrease in employment and wages. They used firms in heavy-polluting industries as the experimental group and firms in other industries as the control group.

Neither of these two studies performed an analysis focused on the relationship between ESG and firms' wages. Zhang et al. (2024) focused on the relationship between ESG scores and innovation, but in an additional analysis they found a positive relationship between ESG scores and average firms' wages. To the best of our knowledge, it is the only study offering

empirical results on this specific relationship. However, they did not formulate a hypothesis, provide an argument for this relationship, or comment extensively on this result.

Sun and Yu (2015) find a positive impact of CSR on employee performance and on employee performance and on cost per employee. However, some of their results, particularly the impact on cost per employee, may be biased. This bias stems from their use of an 18-year sample without adjusting data for inflation. Typically, costs per employee increase over time due to inflation, and CSR scores also tend to rise as firms become more conscious and committed to CSR. Therefore, the observed positive relationship should be interpreted with caution. Additionally, their study focuses on a sample of US firms and did not consider the factor of legal tradition.

In this research we focus on and delve into the relationship between ESG/SOCP and firms' LC.

The SOCP, as provided by ESG databases, and more specifically by the Orbis database used in this study, reflects a firm's performance in managing social responsibilities, particularly in relation to its workforce and broader stakeholder engagement. This includes indicators such as employee relations, labor standards, diversity and inclusion, training and development, occupational health and safety, and corporate social responsibility. Among the three ESG pillars, the social dimension is most directly linked to internal human capital practices. In this study, we focus on LCE as the primary economic outcome affected by these social practices. The rationale for limiting the scope of this research to LCE lies in both the study's focus and the direct financial implications of socially responsible policies that improve working conditions, offer competitive compensation, and invest in employee well-being. These practices are expected to raise average employee compensation, making LCE a meaningful and measurable proxy for assessing the firm's commitment to social responsibility. Therefore, the SOCP–LCE relationship captures how social sustainability initiatives translate into tangible impacts on labor-related costs.

Most previous empirical research finds a positive relationship between ESG and different measures of financial performance. As an example, Friede et al. (2015) analyzed 60 review studies comprising at least 2,200 empirical studies on this relationship and found that 48% of the vote-counting studies and 63% of the meta-analyses concluded a positive relationship, while only 7% and 8% revealed a negative relationship, respectively. The meta-analysis provided an average positive correlation. Similarly, Gillan et al. (2021) and Velte (2021) also found that CSR and environmental performance lead to increased financial performance.

A common argument supporting this positive relationship is that high ESG scores reveal distinct organizational processes that are more likely to have established stakeholder engagement, long-term orientation, and higher measurement and disclosure of nonfinancial information, providing a better guidance for management and mitigation risks (Eccles et al., 2014). Lower cost of capital, enhanced brand reputation and customer loyalty, and innovation and operational efficiency are other arguments for such a positive relationship (Orlitzky et al., 2003; El Ghoul et al., 2011; Lee et al., 2022).

As there is almost no research on the relationship between ESG and LC, the arguments may be derived from these mentioned relationships. On the one hand, firms with high ESG scores, therefore presenting long-term orientation, risk mitigation, low cost of capital, enhanced brand reputation, and high standards of innovation, will engage better paid employees than opposite firms.

There are also arguments for the human factor perspective. It is assumed that higher ESG scores reveal higher levels of employee satisfaction and motivation, leading to higher

engagement and productivity. The extensive literature review by Macassa et al. (2021) found a persistent positive relationship between CSR and job satisfaction, engagement, well-being, affective organizational commitment, identification, and different measures of motivation across almost all studies. For example, Bocean et al. (2022) found a predominantly positive impact of ethical and responsible behavior of the organization on the employees' well-being. However, Piao et al. (2022) found mixed results: positive and negative effects of environmental activities on motivation, a strong and significant effect of social activities, and unfavorable impacts of corporate governance activities. There is also evidence that employee commitment leads to higher financial performance (Yoo et al., 2019). Following these arguments and findings, firms will be ready to pay higher wages to motivated, engaged and/or productive employees. Therefore, a positive relationship between ESG scores and wages is also expected from the motivation argument.

Regarding a likely negative relationship between ESG and financial performance, it may also be argued that ESG initiatives impose additional costs on firms' operations, requiring upfront investments in technology, infrastructure and employee training, which may divert resources from core business activities. These costs can strain financial resources in the short term and potentially reduce profitability (McWilliams & Siegel, 2001). Additionally, ESG compliance may prevent firms from gaining abnormal returns from unethical behavior (Boyle et al., 1997). Despite the small proportion, literature review studies report some empirical research reporting negative relationships (Friede et al., 2015; van Beurden & Gössling, 2008), or even a U-shaped relationship (Lin, 2023). According to these arguments, firms achieving high ESG standards are exposed to higher compliance costs and lower profitability, which may be mitigated with cuts in labor rights and wages.

Sun and Yu (2015) propose two opposite hypotheses. First, they suggest that employees may be willing to work for lower salaries in firms with a good reputation. Second, they argue that, conversely, socially responsible firms may be inclined to offer higher compensation to their employees.

Based on the prevalence of arguments hypothesizing a positive relationship between ESG or SOCP and financial performance, and considering that previous studies have predominantly found positive effects, we formulate the following hypothesis:

H1. *There is a positive relationship between ESG or SOCP and the average firms' cost of employee.*

The legal tradition of a country, with civil and common law being the most significant, can influence various aspects of firms' social and environmental commitments (Amor-Esteban et al., 2018), specifically firms' human resources, including the relationship between ESG and the average firms' cost of employees. While the common law system supports ESG to a lesser extent than civil law regimes and emphasizes shareholders' primary objective of profit-maximization, civil law involves a higher degree of state involvement in business. Firms in civil law countries are more constrained by rule-based mechanisms and tend to have higher ESG scores than in common law countries (Liang & Renneboog, 2017; Castillo-Merino & Rodríguez-Pérez, 2021).

Civil law countries tend to have more comprehensive and rigid employment protection legislation compared to common law countries, which could influence firms' human resources practices, such as hiring, firing and employee benefits. Civil law countries rely on more established and compulsory rules and laws, providing more security to employees than common law countries. They also have a stronger tradition of collective bargaining and unionization,

as well as more powerful labor unions and collective bargaining rights, compared to common law countries, where individual contracts and negotiations are more prevalent (Ahlering & Deakin, 2007). Civil law systems often have more standardized regulations regarding maximum working hours, paid leave and other labor or human resources rights compared to common law systems (Becchetti & Ciciretti, 2020). All these factors contribute to higher wages in civil law countries compared to common law countries. Additionally, civil law countries typically have more extensive social welfare systems, including healthcare, unemployment benefits, and pension schemes, funded by higher social security contributions (Ben-bassat & Dahan, 2008). All these factors may result in higher average LC per employee in civil law countries.

As an example, and in the specific case of France and UK, the statutory limit of weekly working hours is 35 in the former and 48 in the latter, the right to strike is lower in UK than in France, and the corresponding requirements of union authorization for strike are harder, there are more restrictions to employ agency workers in France than in UK, there are also more restrictions to dismiss employees and severance payments are higher in France, the ratio of the minimum wage to the median wage is higher in France compared to UK, France has also a higher rate of coverage of collective industrial agreements¹. Similarly, regarding ESG requirements, French firms are subject to more rigorous and detailed disclosures compared to their UK counterparts. French firms are required through long-established national mandates since the *Déclaration de performance extra-financière* in 2017, while the UK, in contrast, is progressively scaling mandatory disclosures in climate and sustainability, but its approach remains more sector-specific, principle-oriented, and less encompassing across all ESG dimensions². Accordingly, ESG disclosure and scores are lower in UK compared to UK (Baraibar-Diez & Odriozola, 2019).

Legal systems exert their influence not only on firms' ESG adoption but also on the translation of ESG commitments into tangible economic outcomes, such as labor costs. In civil law countries, where employment protections and stakeholder-oriented regulations are more deeply embedded, ESG initiatives related to social responsibility – such as improving employee conditions, providing training, or ensuring equitable pay – are more likely to result in concrete financial impacts, including higher LCE. In contrast, common law systems provide greater managerial discretion and emphasize shareholder primacy, which may allow firms to adopt ESG language or reporting without incurring significant employee-related costs. Thus, legal traditions serve as a moderating institutional mechanism that shapes whether ESG efforts lead to increased labor investment or remain largely symbolic.

According to the influence of legal traditions on ESG scores and human resources practices, including LC, it is expected that such legal traditions would moderate the relationship between ESG and the average firms' costs of employees. The stakeholder-orientation of civil law countries, relying on mandatory regulations, would emphasize the positive relationship hypothesized in H1, compared to shareholder and property rights-oriented common law

¹ See the following webpages and references:

<https://www.littler.com/news-analysis/asap/cross-border-legal-perspectives-comparing-uks-and-frances-approaches-probation>

<https://www.personneltoday.com/hr/employment-legislation-france-v-uk/>

<https://www.tuc.org.uk/research-analysis/reports/falling-behind-labour-rights>

<https://careerminds.co.uk/blog/comprehensive-severance-package> (Cahuc, 2024).

² See the following webpages:

https://mail.theimpactlawyers.com/news/new-and-emerging-esg-laws-and-regulations?utm_source=chatgpt.com

<https://bigmedia.bpi-france.fr/nos-dossiers/dpef-declaration-de-performance-extra-financiere-une-obligation-pour-les-entreprises>

countries. Previous research finds stronger relationships in civil law countries compared to common law countries regarding the relationships between ESG or CSR and various business performance measures, such as stressing lower cost of credit (Jansen, 2017), risk reduction (Benlemlih & Girerd-Potin, 2017; Monti et al., 2022), higher innovation (Chkir et al., 2021), lower abnormal returns (Erragragui et al., 2023; Harjoto et al., 2021), lower earnings management (Pathak & Das Gupta, 2022), or reducing information asymmetry (Athanasakou et al., 2024). These studies find that the civil law environment strengthens the positive relationships between ESG scores and various business outcomes. For example, the latter study finds that firms operating under the French civil law regime in Canada provide less extensive strategy and business model disclosures than those under common law, yet these disclosures are more effective in reducing information asymmetry. Similarly, civil law systems enhance the positive relationship between ESG and other performance measures. We assume that employee compensation is itself a positive social outcome and a contributor to greater job fulfilment. By analogy, our study applies this benchmark to LC, arguing that the institutional environment also influences whether ESG social initiatives translate into increased employee compensation.

We therefore formulate the following hypothesis:

H2. *Civil law tradition emphasizes the positive relationship between ESG or SOCP and the average firms' cost of employee.*

3. Methodology

3.1. Empirical model

Since the seminal study by Anderson et al. (2003) to more recent studies addressing LC (Golden et al., 2020; Argilés-Bosch et al., 2023), literature on cost behavior constructs models explaining cost behavior starting from the basic assumption that firms' costs depend on firms' revenues. Other influential factors are size, indebtedness or firm profitability, similar to variables used in studies by Xiao et al. (2022), Yuan and Wu (2024) and Zhang et al. (2024). We therefore formulate the following model where *LCE* depends on our variables of interest (*ESG* and *CIVIL*), operating revenue per employee (*OPREVE*) and an additional set of variables:

$$LCE_{i,t} = \beta_0 + \beta_1 \times ESG_{i,t} + \beta_2 \times CIVIL_{i,t} + \beta_3 \times ESG_{i,t} \times CIVIL_{i,t} + \beta_4 \times OPREVE_{i,t} + \beta_5 \times \ln TA_{i,t} + \beta_6 \times LEV_{i,t} + \beta_7 \times ROA_{i,t} + \beta_8 \times RD_{i,t} + \sum_{n=1}^N \gamma_n \times IND_{i,t} + \varepsilon_{i,t}, \quad (1)$$

where each observation refers to firm *i* in year *t*, β are the parameters to be estimated, and ε is the error term. *LCE* is approached through firms' average cost of employee, *ESG* is the ESG score, testing Hypothesis H1. *CIVIL* is a dummy variable indicating that an observation corresponds to a firm headquartered in a civil country, with value of 1 and 0 otherwise, *ESG-CIVIL* is the interaction variable, between *ESG* and *CIVIL*, testing Hypotheses H2. We focus on the general *ESG* score, but as *LCE* is more directly linked to *SOCP*, we also test our hypothesis with this variable and the corresponding interaction with *CIVIL* (*SOCP-CIVIL*). The remaining variables are controls commonly used in explaining cost behavior in the previously mentioned studies, and their definitions can be found in the Appendix.

Firms' costs depend on firms' activity, which is commonly approached by operating revenues. More specifically, *LCE* also depends on employees' efficiency to obtain revenues, which

can be approached by *OPREVE*. Size is a likely factor influencing the dependent variable, as higher firms may benefit from economies of scale, are usually more complex, and require higher qualifications, allowing for higher wages to their employees. We approach size through the logarithm of total assets (*lnTA*). Leverage (*LEV*) is a financial constraint that, along with profitability measured as return on assets (*ROA*), may limit resources available for LC. The share of research and development expenses to operating revenue (*RD*) is a proxy for employee qualification, which would likely influence *LCE*. Finally, differences across industries are controlled with several industry dummies (*IND*).

3.2. Sample

The European Orbis database provides all the necessary information for our study. This database contains data on firm financial information, as well as ESG scores. We selected two countries representative of civil and common law legal traditions: France and the United Kingdom. These are two similar countries in terms of size and economic development. According to STATISTA Their population was 64.8 and 67.7 million persons, respectively, in 2023. Additionally, according to the World Bank, their gross domestic product per person was US\$39,179 and US\$40,217 in 2020 and US\$40,886 and US\$46,125 in 2022, respectively, the first and last year of data in our study³. Moreover, they are the two European countries with the highest number of firms with available ESG scores. As LC depend on national settings and specific state regulations, we do not use a heterogeneous sample of different countries within a given legal tradition.

Orbis started recording ESG scores in 2020, and we downloaded data on all firms with such scores from 2020 to 2022, the last available year in the database when we started the study (March 2024). Our final sample is 478 firm-year observations with all necessary data for our study, 250 of them belong to 126 different UK firms, and 228 to 102 French firms. Table 1 presents observations by legal tradition and year. Approximately 46% of observations belong to 2022.

Table 1. Sample (number of observations)

Year	Civil law (France)	Common law (UK)	Total
2020	36	47	83
2021	90	83	173
2022	102	120	222
Total	228	250	478

Given the panel data nature of our study we express *LCE* and *OPREVE* in constant values of 2022, using official OECD inflation rates for both countries⁴.

All continuous variables are winsorized at 1% in each tail.

Table 2 presents descriptive statistics for all variables used in the study. There are no significant differences in the average cost of employees between UK and French firms, but there are significant differences in all remaining variables. ESG and SOCP scores of French firms are

³ See <https://www.statista.com/statistics/685846/population-of-selected-european-countries/> and https://data.world-bank.org/indicator/NY.GDP.PCAP.CD?locations=GB-FR&most_recent_year_desc=true&year_high_desc=-

⁴ Available at <https://data.oecd.org/price/inflation-cpi.htm>

higher than those of UK firms, which is in accordance with previous studies comparing civil versus common law countries. UK firms present significantly higher *OPREV* and profitability than French firms, which are also significantly lower in size, less indebted, and spend at a lower rate in research and development.

Table 2. Descriptive statistics for our sample of 478 observations

Variables	Civil law (France)		Common law (UK)		Total		
	Mean	Median	Mean	Median	Mean	Median	
<i>LCE</i>	66.16	60.96	78.25	64.00	72.48	63.02	
<i>ESG</i>	50.70	56.50	39.61	37.00	44.90	43.00	***
<i>SOCP</i>	50.30	55.00	34.16	32.00	41.86	37.00	***
<i>OPREVE</i>	405.57	265.64	536.07	293.67	473.82	278.50	***
<i>lnTA</i>	22.61	22.94	21.40	21.23	21.98	22.01	***
<i>LEV</i>	62.99	62.14	56.86	55.99	59.78	59.22	***
<i>ROA</i>	2.45	2.51	4.50	4.63	3.52	3.40	***
<i>RD</i>	2.09	0.00	1.19	0.00	1.62	0.00	***

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (Mann-Whitney tests).

Table 3 presents Pearson correlations, where for simplicity we do not include the industry dummies. All coefficients between independent variables are far below 0.7 in the table, with the exception of the coefficient between size (*lnTA*) and both scores, *ESG* and *SOCP*. However, variance inflation factors are low when we remove the interaction variable from the regression⁵: the highest is 2.73 for *lnTA*, below the recommended thresholds of 5 (Menard, 2005, p. 76; Sheather, 2009), indicating the absence of serious collinearity problems.

Table 3. Pearson correlations

	<i>LCE</i>	<i>ESG</i>	<i>SOCP</i>	<i>CIVIL</i>	<i>OPREVE</i>	<i>lnTA</i>	<i>LEV</i>	<i>ROA</i>	<i>RD</i>
<i>LCE</i>	1								
<i>ESG</i>	−0.05	1							
<i>SOCP</i>	−0.089*	0.962***	1						
<i>CIVIL</i>	−0.12***	0.367***	0.49***	1					
<i>OPREVE</i>	0.631***	0.013	−0.028	−0.119***	1				
<i>lnTA</i>	−0.036	0.755***	0.721***	0.293***	0.102**	1			
<i>LEV</i>	−0.177***	0.132***	0.149***	0.141***	−0.082*	0.208***	1		
<i>ROA</i>	0.018	0.055	0.017	−0.097**	0.047	−0.004	−0.394***	1	
<i>RD</i>	0.106**	−0.082*	−0.044	0.079*	−0.115**	−0.109**	−0.079*	−0.224***	1

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

⁵ As Disatnik and Sivan (2016) and McClelland et al. (2017) reveal, the multicollinearity that is often obtained with moderated multiple regression is irrelevant, fictitious, does not create a multicollinearity problem and is irrelevant estimating and testing interactions.

4. Results

Given the panel data structure of our sample, the use of a variable (*CIVIL*), as well as industry dummies, that do not change over time in all firms, and the presence of heteroscedasticity, we perform random-effects estimations with robust standard errors.

Table 4. Robust random effects estimation of *LCE* depending on *ESG/SOCP* and legal tradition. Whole sample

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	<i>ESG</i>	<i>ESG</i>	<i>ESG</i>	<i>SOCP</i>	<i>SOCP</i>	<i>SOCP</i>
<i>ESG</i>	0.00803 (0.180)	−0.534 (0.335)	−0.412 (0.316)			
<i>CIVIL</i>	−3.637 (4.518)	−39.64** (15.50)	−35.18*** (13.63)	−3.631 (4.646)	−40.72*** (14.75)	−35.76*** (12.51)
<i>CIVIL-ESG</i>		0.849** (0.342)	0.743** (0.314)			
<i>SOCP</i>				0.00318 (0.173)	−0.673* (0.357)	−0.494 (0.321)
<i>CIVIL-SOCP</i>					0.975*** (0.365)	0.827** (0.322)
<i>OPREVE</i>	0.0503*** (0.00834)	0.0512*** (0.00826)	0.0464*** (0.00795)	0.0503*** (0.00835)	0.0515*** (0.00822)	0.0466*** (0.00791)
<i>lnTA</i>	−1.645 (1.680)	−1.766 (1.692)	−2.522 (1.539)	−1.619 (1.652)	−1.639 (1.650)	−2.521* (1.494)
<i>LEV</i>	−0.234** (0.100)	−0.240** (0.100)	−0.149 (0.0991)	−0.234** (0.101)	−0.239** (0.101)	−0.147 (0.0998)
<i>ROA</i>	−0.0834 (0.165)	−0.0635 (0.168)	−0.0116 (0.164)	−0.0831 (0.165)	−0.0724 (0.168)	−0.0181 (0.164)
<i>RD</i>	1.303*** (0.270)	1.342*** (0.307)	1.403*** (0.308)	1.302*** (0.270)	1.369*** (0.313)	1.411*** (0.311)
<i>IND</i>			Yes			Yes
Constant	98.08*** (33.23)	121.4*** (35.75)	127.6*** (31.31)			128.3*** (31.28)
Observations	478	478	478	478	478	478
Number of firms	228	228	228	228	228	228
R-sq overall	0.4462	0.4465	0.5532	0.4461	0.4534	0.5570

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4 shows the main results. The coefficient of *ESG* is non-significant in Column (1). However, the significant positive sign of *CIVIL-ESG* in Column (2) indicates that the relationship between *ESG* and *LCE* depends on the legal tradition, which significantly moderates the relationship. More specifically, the relationship is non-significant (at $p < 0.1$) in common law, but significant and positive in civil law countries: the *F* test rejects the null hypothesis that

coefficients on *ESG* and *CIVIL-ESG* both equal zero with $p < 0.05$. Column (3) offers results including industry dummies. Results in Column (3), including industry variables, are essentially the same. Columns (4) to (5) present the corresponding estimations when the variable of interest is *SOCP*, which are very similar to those of Columns (1) to (3). All these results provide limited support for hypothesis H1, supporting it in the context of civil law tradition, but not in common law, and reinforced support for hypothesis H2.

Regarding control variables, *LCE* is significantly lower in civil law countries, as previously revealed by univariate analysis, the coefficients of *OPREV* and *RD* are positive and significant in all columns, as expected, meaning that the higher revenues per employee and the share of research and development expenses correspond to higher employee productivity and qualification, necessitating better-paid employees. Leverage is also, as expected, negatively and significantly related to *LCE* in most estimations.

Tables 5 and 6 show separate results for the subsamples of French and UK firms respectively for the *ESG* and *SOCP* scores. The estimation for separate subsamples makes the use of the variable *CIVIL* unnecessary in each subsample, and therefore the relationship between *ESG/SOCP* and *LCE* may be studied separately for each subsample using with fixed effects.

Table 5. *LCE* depending on *ESG/SOCP*. Civil law (French) subsample.

	(1)	(2)	(3)	(4)
	Random effects	Fixed effects	Random effects	Fixed effects
VARIABLES	<i>ESG</i>	<i>ESG</i>	<i>SOCP</i>	<i>SOCP</i>
<i>ESG</i>	0.496**	0.333		
	(0.194)	(0.217)		
<i>SOCP</i>			0.470***	0.376*
			(0.177)	(0.221)
<i>OPREVE</i>	0.0512***	0.0621**	0.0513***	0.0625**
	(0.0127)	(0.0287)	(0.0125)	(0.0285)
<i>lnTA</i>	−3.282*	0.280	−3.108*	0.522
	(1.870)	(6.788)	(1.837)	(6.347)
<i>LEV</i>	−0.180	−0.489	−0.186	−0.496
	(0.131)	(0.330)	(0.132)	(0.327)
<i>ROA</i>	−0.544*	−0.654	−0.555*	−0.679
	(0.308)	(0.433)	(0.309)	(0.431)
<i>RD</i>	1.342***	1.792	1.340***	1.730
	(0.265)	(1.657)	(0.263)	(1.693)
<i>IND</i>	Yes		Yes	
Constant	103.8***	46.44	101.5***	39.45
	(35.32)	(145.0)	(35.76)	(136.6)
Observations	228	228	228	228
Number of firm	102	102	102	102
Roverall	0.7108	0.6060	0.7102	0.6019

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Comparing the relationships in each subsample allows an indirect observation of the moderating effect of the legal tradition, while in the estimation of the whole sample with fixed effects, the variable *CIVIL* is dropped due to collinearity. Therefore, Tables 5 and 6 present additional results with fixed effects estimations. Overall results in both samples confirm the main results from Table 4. The significant positive coefficients of *ESG* and *SOCP* in all columns of Table 5, with the exception of Column (2) (fixed effects estimation for *ESG*), provide support for H1 in the civil law context (France), but not for the common law context (UK), where all coefficients of these variables are non-significant (see Table 6), with the exception of Column (2), where the coefficient of *ESG* (fixed effects estimation) is negative and significant at $p < 0.1$. The comparison of results in both tables provides support for hypothesis H2 in all cases.

There is concern about an endogenous relationship. *LCE* can affect the firm's engagement in ESG actions, particularly in a civil-law context, where firms tend to receive higher scores as they are obliged to meet some stringent labor regulations they are required to meet. To address this, similarly to the approach of Pathak and Das Gupta (2022), we include the first lag of the dependent variable as an additional control variable. The results, reported in Table 7, show that despite the significance of the lag variable, the coefficient of the interaction variables *CIVIL-ESG* and *CIVIL-SOCP* remain positive and significant in Columns (1) and

Table 6. *LCE* depending on *ESG/SOCP*. Common law (UK) subsample

	(1)	(2)	(3)	(4)
	Random effects	Fixed effects	Random effects	Fixed effects
Variables	<i>ESG</i>	<i>ESG</i>	<i>SOCP</i>	<i>SOCP</i>
<i>ESG</i>	-0.589 (0.376)	-0.755* (0.430)		
<i>SOCP</i>			-0.587 (0.371)	-0.705 (0.448)
<i>OPREVE</i>	0.0394*** (0.00885)	0.0336*** (0.0105)	0.0397*** (0.00893)	0.0341*** (0.0108)
<i>lnTA</i>	-1.918 (2.116)	-3.123 (5.084)	-2.410 (2.037)	-4.877 (5.329)
<i>LEV</i>	-0.0552 (0.118)	0.0190 (0.151)	-0.0416 (0.121)	0.0591 (0.155)
<i>ROA</i>	0.327** (0.162)	0.439** (0.179)	0.320** (0.162)	0.436** (0.181)
<i>RD</i>	1.319*** (0.439)	-0.781 (0.982)	1.371*** (0.462)	-0.752 (0.998)
<i>IND</i>	Yes		Yes	
Constant	117.9*** (41.47)	154.9 (109.9)	125.1*** (41.34)	184.0 (115.2)
Observations	250	250	250	250
Number of firm	126	126	126	126
Roverall	0.5414	0.2580	0.5470	0.2538

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

(2). This reinforces the support for the moderating effect of the civil law tradition compared to common law, as formulated in H2. Furthermore, the coefficient of *SOCP* is positive and significant in the French subsample (Column 4)), but it is non-significant in the UK subsample (Column (6)). Similarly, the coefficient of *ESG* is non-significant in the French subsample (Column (3)), while it is negative and significant in the UK subsample (Column (5)). These results offer only limited support for H1, evidencing that the relationship between *ESG*/*SOCP* scores and *LCE* is not consistently positive; it can also be negative: However, they provide reinforced support for H2.

Table 7. Endogeneity results (lagged value of the dependent variables as additional control variable)

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Whole sample <i>ESG</i>	Whole sample <i>SOCP</i>	France <i>ESG</i>	France <i>SOCP</i>	UK <i>ESG</i>	UK <i>SOCP</i>
<i>ESG</i>	−0.321 (0.260)		0.230 (0.146)		−0.658* (0.367)	
<i>CIVIL</i>	−21.02* (10.74)	−19.39** (9.260)				
<i>CIVIL-ESG</i>	0.499** (0.248)					
<i>SOCP</i>		−0.293 (0.239)		0.234* (0.131)		−0.540 (0.341)
<i>CIVIL-SOCP</i>		0.496** (0.238)				
<i>OPREVE</i>	0.0235*** (0.00647)	0.0236*** (0.00649)	0.0199** (0.00958)	0.0199** (0.00937)	0.0242*** (0.00894)	0.0246*** (0.00915)
<i>lnTA</i>	−0.865 (0.979)	−1.063 (0.934)	−1.678 (1.235)	−1.713 (1.170)	0.652 (1.581)	−0.106 (1.498)
<i>LEV</i>	−0.0161 (0.0754)	−0.0148 (0.0756)	−0.0165 (0.0627)	−0.0146 (0.0638)	−0.0153 (0.113)	−0.00818 (0.114)
<i>ROA</i>	0.249 (0.181)	0.241 (0.181)	−0.105 (0.194)	−0.0954 (0.193)	0.519*** (0.179)	0.499*** (0.179)
<i>RD</i>	0.859*** (0.219)	0.868*** (0.221)	0.379 (0.257)	0.380 (0.253)	1.269*** (0.353)	1.326*** (0.378)
<i>Lag LCE</i>	0.498*** (0.0695)	0.495*** (0.0695)	0.702*** (0.135)	0.702*** (0.132)	0.421*** (0.0782)	0.414*** (0.0807)
<i>IND</i>	Yes	Yes	Yes	Yes	Yes	Yes
Constant	53.87*** (20.42)	55.70*** (20.42)	38.80 (23.86)	39.22* (22.99)	38.44 (30.49)	47.75 (31.13)
Observations	474	474	227	227	247	247
Number of firm	226	226	102	102	124	124
R-overall	0.8500	0.8504	0.8483	0.8491	0.8409	0.8424

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

We conducted additional analysis by including the first lag of the dependent variable as an instrument for *ESG/SOCP* in the model, assuming that the lagged value of *LCE* may also influence these scores, making it a suitable instrument for the *ESG/SOCP* variables. We used two-stage least squares estimations for panel data with Eq. (1). The results (displayed in Table 8) reinforce the support for a significant positive relationship between *ESG/SOCP* and *LCE* in France, while this relationship does not appear in the UK.

Table 8. Endogeneity results: two-stage least squares (lagged value of the dependent variables as instrument for *ESG/SOCP*)

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Whole sample <i>ESG</i>	Whole sample <i>SOCP</i>	France <i>ESG</i>	France <i>SOCP</i>	UK <i>ESG</i>	UK <i>SOCP</i>
<i>ESG</i>	-7.135*		0.504**		-2.545	
	(4.057)		(0.203)		(1.961)	
<i>CIVIL</i>	-307.1*	-439.7				
	(165.5)	(323.2)				
<i>CIVIL-ESG</i>	7.347*					
	(4.003)					
<i>SOCP</i>		-12.35		0.478***		-4.707
		(9.417)		(0.184)		(3.823)
<i>CIVIL-SOCP</i>		12.54				
		(9.310)				
<i>OPREVE</i>	0.0476***	0.0578***	0.0510***	0.0510***	0.0355***	0.0417***
	(0.0116)	(0.0217)	(0.0124)	(0.0123)	(0.00934)	(0.0136)
<i>lnTA</i>	10.86	5.322	-3.301*	-3.122*	2.119	-2.803
	(15.67)	(18.02)	(1.905)	(1.857)	(8.113)	(10.73)
<i>LEV</i>	-0.660	-0.669	-0.175	-0.179	-0.200	-0.237
	(0.478)	(0.657)	(0.128)	(0.129)	(0.315)	(0.413)
<i>ROA</i>	0.158	0.239	-0.574*	-0.584*	0.497**	0.561**
	(0.307)	(0.389)	(0.323)	(0.322)	(0.205)	(0.244)
<i>RD</i>	3.893	4.691	1.341***	1.339***	0.628	2.661
	(3.165)	(3.621)	(0.268)	(0.266)	(2.051)	(4.179)
<i>IND</i>	Yes	Yes	Yes	Yes	Yes	Yes
Constant	131.6	392.9	103.7***	101.3***	119.8	289.0
	(263.8)	(362.0)	(35.68)	(35.94)	(138.5)	(245.3)
Observations	474	474	227	227	247	247
Number of firm	226	226	102	102	124	124
R-overall	0.2175	0.1342	0.7108	0.7101	0.4266	0.2806

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

We explore further the endogeneity problem following the approach of Sun and Yu (2015), which considers that the *ESG/SOCP* scores of individual firms are influenced by the scores of the surrounding firms with the same industry and country. To account for this, we conducted

two-stages least squares panel data estimations, using the mean industry-country scores are instruments for the firms' scores. The results (not tabulated) reinforce the support for a more positive relationship between ESG/SOCP and LCE within the context of civil law tradition.

5. Conclusions

This study explores the relationship between ESG and firms' LC, with a particular focus on the moderating effect of the legal tradition. Using a sample of firms from France (representing a civil law tradition) and the United Kingdom (representing a common law tradition), we provide empirical evidence on how these legal traditions influence the ESG-wage cost relationship.

Our findings indicate that the relationship between ESG and LC is significantly moderated by the legal tradition. Specifically, while the relationship is non-significant in common law, it becomes significant and positive in civil law. This suggests that the positive impact of ESG on wage costs is more pronounced in civil law countries. The legal framework in civil law countries, characterized by more stringent labor protections and stakeholder-oriented policies, likely contributes to this effect. Firms in civil law countries such as France may face stronger regulatory pressures and social expectations to adhere to ESG standards, resulting in higher LC per employee.

In contrast, the common law tradition, which prioritizes shareholder value and provides more flexibility in labor practices, does not show a significant link between ESG and LC per employee. This distinction highlights the role of institutional environments in shaping the effectiveness and implementation of ESG initiatives.

Our results contribute to the literature by offering novel evidence into the ESG-LC relationship and by highlighting the importance of legal context. The findings underscore the necessity for policymakers and corporate leaders to consider the institutional environment when designing and implementing ESG strategies.

Our study shows that, in the absence of enforcement and stringent regulatory frameworks, ESG scores fail to deliver effective and specific and tangible benefits for employees beyond advancing shareholders' interests. Since the ultimate goal of firms is profit maximization, market regulatory-based regulatory systems driven by stakeholder influence are less effective than legal frameworks that mandate compliance. Policymakers in civil law countries, where legal systems are more protective of labor rights, should continue reinforcing ESG mandates, including clearer reporting standards and labor-related disclosure requirements. Specifically, France could revert the current trend of increasing share of temporary employment, which is endangering the traditional high level of employment protection in this country. In contrast, common law countries may consider introducing new policy instruments – such as mandatory ESG reporting, employee protection measures, or incentives for firms demonstrating socially responsible practices – to ensure ESG efforts translate into improved labor outcomes. The key challenge lies in developing a regulatory agenda that prioritizes societal interests and employee interest alongside business goals. This requires the implementation of enforceable labor protections, mechanisms to ensure fair wages, and strengthened social security contributions. Civil law frameworks, with their stronger labor protections and ESG enforcement mechanisms, may offer valuable lessons for both policymakers and firms seeking to align ESG efforts with tangible employee benefits, ensuring that ESG commitments go beyond symbolic

compliance. In the specific case of UK, new reforms could revert the traditional low protective labor laws, more precisely, the removal of the two-year qualifying period for claiming unfair dismissal, which is currently under discussion, would be an appropriate measure. More favorable severance payments would also help protect labor rights.

Our study has several limitations. First, the sample size is small, and the study period is short. Future research should aim to confirm our results using larger samples and longer observation periods. Additionally, the limited experience of Orbis as a provider of ESG scores is a constraint, necessitating the reinforcement of results with alternative and more established ESG measures. Another limitation is that we analyze only two countries. Expanding the geographical scope to include more countries with different legal traditions would enhance the study's generalizability. While we focus on two contrasting legal traditions, intermediate legal frameworks also warrant analysis, as this could provide a more comprehensive understanding of how legal systems influence the ESG-LC relationship. Finally, the impact of ESG on LC may materialize over the long term. Since our study adopts a short-term perspective, this is another limitation. Future research should explore the long-term effects of ESG initiatives on LC and overall firm performance across diverse legal contexts to further enrich the field. In this vein, future research could use larger samples, alternative ESG metrics, and expand the scope of countries and time periods analyzed, particularly to capture long term effects. Cross-country longitudinal studies would be especially valuable for assessing the persistence of ESG impacts on labor costs over time.

Additionally, qualitative research, including in-depth case studies, can help uncover the internal mechanisms by which ESG initiatives influence labor outcomes within firms operating under different legal traditions. These studies would complement the statistical relationships identified in this paper and offer more granular insights into how institutional environments shape ESG effectiveness.

In summary, our study emphasizes the significant role of legal tradition in moderating the impact of ESG on LC per employee. This relationship is notably stronger in civil law countries, suggesting that firms operating in such environments are likely to incur higher LC per employee as they strive to meet ESG standards.

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Author contributions

Argilés-Bosch, Garcia-Blandon and Ravenda contributed equally conceiving the paper, designing, data collection and analysis.

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APPENDIX

Variable definitions

Variable	Definition
<i>LCE</i>	Average labor cost per employee (in thousand €) – Actual values from 2022 adjusted for inflation
<i>ESG</i>	Environmental, social and governance score
<i>SOCP</i>	Social pillar score
<i>CIVIL</i>	Indicator variable equaling 1 for firms headquartered in civil law countries
<i>ESG-CIVIL</i>	Interaction variable between <i>ESG</i> and <i>CIVIL</i>

Variable	Definition
<i>SOCP-CIVIL</i>	Interaction variable between <i>SOCP</i> and <i>CIVIL</i>
<i>OPREVE</i>	Operating revenue per Employee (in thousand €) – Actual values from 2022 adjusted for inflation
<i>lnTA</i>	Natural logarithm of total assets
<i>LEV</i>	Financial leverage, calculated as current plus non-current liabilities to total assets
<i>ROA</i>	Return on assets calculated as net income to total assets
<i>RD</i>	Research and development expenses to operating revenue
<i>IND</i>	Indicator variables of industry equaling 1 for firms belonging to a given NACE Rev. 2 (Statistical classification of economic activities in the European Community) industry, and 0 otherwise (at Section levels)