MULTILEVEL ANALYSIS OF GENDER EQUITY DISCLOSURE

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ABSTRACT

Objective: The objective of this study is to investigate gender equity, with the aim of analyse the impact of country, sector, and company characteristics on corporate gender equity disclosure.

Theoretical Framework: The main concepts and theories that underpin the research are institutional theory with National Business System (NBS) approach.

Method: We collected information on gender equity disclosure from 3,726 companies in 58 countries over a 10-year interval from the Thomson Reuters database. Than, we use hierarchical analysis to link the degree of disclosure obtained by companies with variables at the macro, medium, and micro levels.

Results and Discussion: We found that the equity disclosure is particularly sensitive to company characteristics such as trade union representation, company size or board gender diversity. Country characteristics, such as enforcement capacity, pressure from unions, popular participation, and economic development positively affect gender equity disclosure. The sector does not present statistical significance to explain variations in gender disclosure.

Research Implications: These findings show that theoretical aspects of National Business System and multilevel characteristics approaches do provide empirical support to explain gender equity and its disclosure and help to resolve gender issues.

Originality/Value: This research fills the gap resulting from the lack of multilevel analysis on gender equity disclosure and helps identify which level and characteristics prevail and have the greatest impact. Therefore, the results guide the intervention of different social spheres to promote gender equity.

Keywords: Corporate Social Responsibility, Gender Equity, Disclosure, Institutional Theory, National Business System, Multilevel Analysis.

ANÁLISE MULTINÍVEL DA DIVULGAÇÃO DE IGUALDADE DE GÊNERO

RESUMO

Objetivo: O objetivo deste estudo é investigar a igualdade de gênero, com o objetivo de analisar o impacto das características do país, setor e empresa na divulgação da igualdade de gênero corporativa.

Estrutura Teórica: Os principais conceitos e teorias que sustentam a pesquisa são a teoria institucional com a abordagem do Sistema Nacional de Negócios (NBS).

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Método: Coletamos informações sobre a divulgação de equidade de gênero de 3.726 empresas em 58 países ao longo de um intervalo de 10 anos da base de dados Thomson Reuters. Assim, utilizamos a análise hierárquica para vincular o grau de divulgação obtido pelas empresas com variáveis nos níveis macro, médio e micro.

Resultados e Discussão: Descobrimos que a divulgação de patrimônio é particularmente sensível às características da empresa, como representação sindical, tamanho da empresa ou diversidade de gênero do conselho. As características do país, como a capacidade de aplicação da lei, a pressão dos sindicatos, a participação popular e o desenvolvimento econômico afetam positivamente a divulgação da igualdade de gênero. O setor não apresenta significância estatística para explicar variações na divulgação de gênero.

Implicações da Pesquisa: Essas descobertas mostram que os aspectos teóricos do Sistema Nacional de Negócios e as abordagens de características multiníveis fornecem suporte empírico para explicar a igualdade de gênero e sua divulgação e ajudam a resolver questões de gênero.

Originalidade/Valor: esta pesquisa preenche a lacuna resultante da falta de análise multinível sobre a divulgação de equidade de gênero e ajuda a identificar qual nível e características prevalecem e têm o maior impacto. Portanto, os resultados guiam a intervenção de diferentes esferas sociais para promover a igualdade de gênero.


ANÁLISIS MULTINIVEL DE LA DIVULGACIÓN DE LA EQUIDAD DE GÉNERO

RESUMEN

Objetivo: El objetivo de este estudio es investigar la equidad de género, con el objetivo de analizar el impacto de las características de países, sector y empresa en la divulgación de la equidad de género corporativa.

Marco Teórico: Los principales conceptos y teorías que sustentan la investigación son la teoría institucional con enfoque del Sistema Nacional de Negocios (SBS).

Método: Recopilamos información sobre la divulgación de la equidad de género de 3.726 empresas en 58 países en un intervalo de 10 años de la base de datos Thomson Reuters. Además, utilizamos el análisis jerárquico para vincular el grado de divulgación obtenido por las empresas con variables a nivel macro, medio y micro.

Resultados y discusión: Se encontró que la divulgación de la equidad es particularmente sensible a las características de la empresa, como la representación sindical, el tamaño de la empresa o la diversidad de género en la junta directiva. Las características de los países, como la capacidad de hacer cumplir la ley, la presión de los sindicatos, la participación popular y el desarrollo económico, afectan positivamente la divulgación de la equidad de género. El sector no presenta significación estadística para explicar las variaciones en la divulgación de género.

Implicaciones de la investigación: Estos hallazgos muestran que los aspectos teóricos del Sistema Nacional de Negocios y los enfoques de características multinivel proporcionan apoyo empírico para explicar la equidad de género y su divulgación y ayudan a resolver los problemas de género.

Originalidad/Valor: Esta investigación llena la brecha resultante de la falta de análisis multinivel sobre la divulgación de la equidad de género y ayuda a identificar qué nivel y características prevalecen y tienen el mayor impacto. Por lo tanto, los resultados orientan la intervención de diferentes ámbitos sociales para promover la equidad de género.


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1 INTRODUCTION

Several gender studies observe how female behavior can affect corporate decisions, such as implications in sustainability reporting (Zahid et al. 2020), analysts' earnings forecasts (Datta, Doan & Iskandar-Datta, 2022), among other aspects.

Regarding specifically gender equity, we observed studies about the relationship of the phenomenon with the functional performance of women in corporations (Belaounia, Tao & Zhao, 2020) and aspects that can mitigate gender discrimination (Nyarko, 2022).

However, specifically in relation to the disclosure of gender equity, there are few studies. We have observed approaches that analyze how the disclosure of gender policies affects business performance (Escamilla-Solano, Paule-Vianez, & BlancoGonzález, 2022), examine whether disclosure about gender pay is important for investors (Austin, Bobek, & Harris, 2021).

Many recent studies on corporate social responsibility use various theories to understand and explain the phenomenon better. These include stakeholder theory, institutional theory, legitimacy theory, and voluntary disclosure theory (Khan and Kamal, 2021). Several studies also explore the influence of aspects concerning a country’s National Business System (NBS) approach to CSR in general (Branisa et al., 2013; Ioannou and Serafeim, 2012; Jensen and Berg, 2012; Lattemann et al., 2009; Turban and Greening, 2000), and which fall within the context of institutional theory. Yet studies addressing gender equity adoption and its disclosure remain scarce (Celis et al., 2015) and none deal jointly with the multilevel influence of characteristics at the macro, medium, and micro level. This approach can be seen when analysing CSR disclosure in general, when grouping the proposed mediating and moderating aspects into these three levels (Aguinis and Glavas, 2012), or through the action carried out by actors at each level, including the performance of transnational entities at a supra-level (Aguilera et al., 2007).

Nevertheless, discrepancies emerge in the results from the research conducted on the basis of these proposals: sometimes macro-level factors prevail (Soares et al., 2020); sometimes the literature identifies the strong impact of the medium level—such as the sector in which the company operates—(Karassin and Bar-Haim, 2016), while microlevel factors sometimes emerge as the most prominent (Orlitzky et al., 2017).

After identifying the existing gap in the literature addressing gender equity disclosure, the objective of this paper is to measure the degree of disclosure of information on gender equity and to analyse how country (macro level), sector (medium level), and company (micro level) characteristics impact such disclosure in an international sample of firms.
For this purpose, we collected information on gender equity disclosure from 3,726 companies in 58 countries over a 10-year interval from the Thomson Reuters database. We build and measure the degree of gender equity disclosure achieved by international companies in the sample. Using hierarchical analysis, this then enabled us to link the degree of disclosure obtained by companies with variables at the macro, medium, and micro levels so as to then carry out analyses and reach conclusions.

We went beyond previous works that studied gender disclosure (García-Sánchez et al., 2020; Celis et al., 2015; Escamilla-Solano, Paule-Vianez, & Blanco-González, 2022; Austin, Bobek, & Harris, 2021) as a phenomenon influenced by one-level factors, as we have already highlighted, and we verified factors of the three levels that can impact gender equity and its disclosure.

We contribute through several key aspects from different points of view. We develop a model that specifies how multilevel characteristics influence gender equity disclosure. This research fills the gap arising from the lack of multilevel analysis on gender equity disclosure and helps to identify which level and characteristics prevail and have the greatest impact. This study also allows us to test whether the phenomenon occurred differently vis-à-vis each region’s local peculiarities and to identify which characteristics have a different influence on gender equity disclosure.

The practical contributions of the paper include identifying which characteristics influence gender equity and its disclosure so as to then enable intervention from different social spheres and actors such as government, stock exchanges, managers, boards of directors, and other company decision-makers.

2 THEORETICAL BACKGROUND

2.1 GENDER EQUITY IN COMPANIES

In the business environment, gender equity consists of fairness in work opportunities, actions aimed at well-being in the workplace and how the company interacts with its surroundings (supply chain and community) in order to favour the absence of gender discrimination (UN Women and UN Global Compact, 2014). Some actions favour gender equity in the internal environment while others do so in the external environment.

Progress made by companies in gender equity forms part of the role of corporate social responsibility, and firms’ disclosing information about such progress to their stakeholders also
falls within the scope of CSR. However, studies focusing exclusively on gender disclosure are scarce. In view of this, in the following sections we identify which factors may have an impact and to which of the three levels they belong.

2.2 MULTILEVEL ANALYSIS

Exploring the macro, medium, and micro levels, Orlitzky et al. (2017) identified that performance in terms of social responsibility is not primarily driven by macro-level factors involving the NBS, except in the case of “shareholder-oriented” practices (related to good governance practices). The authors also mention that medium level factors –or by sector– have no significant impact either. Finally, they state that effectiveness in social terms is intrinsically associated with micro level aspects, which were seen as being able to influence the impact of the other aspects.

Bar-Haim and Karassin (2018) carried out a multilevel study on labour practices and human resources management (HRM) in the context of CSR, and noted that the predictive power of the institutional environment and the sector were more influential than firm characteristics. Soares et al. (2020) indicate that institutional variables are more significant in explaining CSR than the company’s financial characteristics, while Jones et al. (2017) point out that it is a mistake to think that only micro-level variables influence CSR.

These research results highlight the conflicts between the multilevel characteristics that influence the disclosure of CSR and with the prevalence –in certain circumstances- of one over the other (Aguilera et al., 2007). The following sections explore each of these levels and their influence on gender equity disclosure, a phenomenon that was not approached in these studies.

2.2.1 Macro level and the National Business System

The National Business System (NBS) is composed of each country’s political, financial, education and work, cultural and economic subsystems (Whitley, 2003). The studies address CSR and NBS fail to explore aspects related to gender equity disclosure.

When establishing a relationship between the aspects addressed by the NBS and gender issues –in an environment where there are specific laws and rules focused on gender issues and where monitoring compliance with them is high– job allocations tend to be more objective and, consequently, gender segregation is lower (Rao and Tilt, 2016). In terms of government effectiveness, gender inequality is associated with inadequate governance (Branisa et al., 2013).
In this way, ineffective government management can affect the gender equity disclosure. With regard to how easily financial resources may be obtained (Ioannou and Serafeim, 2012; Jensen and Berg, 2012), studies on gender equity draw no conclusions. However, capital market agents have sought to establish indexes that signal companies’ social engagement, including a gender perspective (Bloomberg, 2022). Gender disclosure is thus expected to be greater in companies located in economies dominated by capital market financing (Cho et al., 2021) and grouped in indexes of this type (Badea et al., 2020).

As regards the quality of the education system, the study by the International Labour Organization (ILO) (2018) noted that an improved standard of education helps women progress professionally, although the study does in fact point to an increase in gender inequality. A good quality education system is thus seen as a starting point for men and women to achieve equal opportunities in the labour market (Turban and Greening, 2000).

As for the role played by unions, when professional associations fail to act or are more fragile and when individual work agreements prevail, major gender inequalities can emerge (Bergmann et al., 2019). As regards popular participation, this can increase women’s importance in local political and development spheres (Clisby, 2005). Among the dimensions explored by Hofstede (1983), distance from power proves to be particularly important when explaining the gender issue (Reilly, 2012).

In terms of economic issues, some studies contend that economic prosperity, measured by GDP, influences gender equity (Baughn et al., 2007; Jensen and Berg, 2012; Reilly, 2012) and that levels of economic freedom are related to the gender pay gap (Apergis and Lynch, 2022). There is also an understanding that this relationship is not linear, and that other forces might act to prevent such progress (Eastin and Prakash, 2013). Therefore, the country’s characteristics can mean that the macro level has the greatest impact on gender equity adoption and its disclosure. We therefore presented the following hypothesis:

\[ H1: \text{Macro-level characteristics have a major influence on the level of gender equity disclosure} \]

### 2.2.2 Medium level

In the literature, studies on gender equality show that the sector can influence the practices adopted. Apergis and Lynch (2022) address the impact of economic freedom on the gender wage gap in the United Kingdom, with greater emphasis on this factor in the manufacturing industry. Bergmann, Scheele and Sorger (2019) investigate the gender wage gap in Austria and Germany, and note that the sector has a crucial impact on this issue. Ozkazanc-
Pan and Muntean (2018) investigated the adoption of gender neutral recruitment practices in the technology sector and found that, instead of mitigating differences, companies in this sector exacerbate the marginalization of women.

Based on these studies, we see that national and international institutional scenarios influence strategic decisions. Based on this premise, many studies seek to verify whether the sector—as a medium level or organizational characteristic— influences the adoption and disclosure of CSR practices in general, such as environmental, social, and governance practices (Gawel and Mroczek-Dąbrowska, 2021; Karassin and Bar-Haim, 2016). In this scenario, internal and external stakeholders pressure companies to be more socially responsible (Aguilera et al., 2007). However, works exploring the adoption and disclosure of CSR actions specifically aimed at gender equity are scarce and few address the influence of medium-level characteristics, sector or organizational characteristics.

As regards the issue of gender, studies addressing organizational theories explore topics such as the characteristics attributed to professions considered male, or structural changes which—in developed countries—have reduced the demand for physical work, thereby favouring a reduction in gender inequality (Apergis and Lynch, 2022; Ozkazanc-Pan e Muntean, 2018). Commercial activity is also considered a sector in which gender equity has yet to evolve (Lane and Crane, 2002). Sectorial features can therefore lead to the medium level having the greatest impact on gender equity adoption and its disclosure. We therefore established the hypothesis: 

\[ H2: \text{Medium-level characteristics have a major influence on the level of gender equity disclosure} \]

### 2.2.3 Micro level

Within a corporation, employees usually organize themselves into unions to express their dissatisfaction and to put pressure on the company to implement CSR actions, among other demands. In this way, employee participation in associations encourages the formalization of collective work agreements, which inhibits gender inequality (Bergmann et al., 2019). Another aspect mentioned is the existence of an institutional barrier that prevents women from being promoted. This phenomenon, known as “the glass ceiling”, has been the subject of several studies (Lathabhavan and Balasubramanian, 2017). The presence of women in boards is another firm characteristic that positively influences the adoption of gender equality practices (Celis et al., 2015; García-Sánchez et al., 2020).

Furthermore, to legitimize their actions, corporations are seen to engage in pacts with
institutions that encourage the adoption of CSR practices (Nasiritousi et al., 2016). The work of the UN and the World Bank is the most notable performance in terms of engaging in efforts to promote gender equity (Eastin and Prakash, 2013).

Other variables to be considered when studying the influence of the micro level on the adoption and disclosure of gender equity are company profitability and size (Quéré et al., 2018) and the adoption of Global Reporting Initiative (GRI) guidelines (Diouf and Boiral, 2017). These micro-level variables (employee participation in trade union organizations, the presence of women on the board of directors, and commitments to supranational nongovernmental organizations, profitability, company size, adoption of GRI guidelines) can thus impact gender disclosure.

Finally, we understand that the macro and medium levels should also influence gender equity disclosure, albeit with less of an impact. We therefore establish the following hypothesis: 

**H3: Micro-level characteristics have a very great influence on the level of gender equity disclosure**

### 3 METHODOLOGY

#### 3.1 POPULATION AND SAMPLE CHARACTERISTICS

In April 2019, we collected information from 61,679 companies included in the Thomson Reuters database. However, as many of them had no records of indicators about gender equity disclosure (described in Table 1), we decided to exclude missing data and to examine the 3,726 companies that did have data available so as to give a balanced 10-year panel, spanning from 2008 to 2017, given that data for 2018 were still not available at the cutoff date. With the balanced panel, each unit has the same number of observations over time, generating a total of 37,260 gender equity disclosure level records.

#### 3.2 PROCEDURES AND TECHNIQUES USED FOR DATA COLLECTION

Previous studies that have sought to measure gender equity disclosure have drawn on indicators, addressing the existence of policies that promote a balance between personal and professional life or that offer flexible working hours, the percentage of women employed, the percentage of female managers, available day care services, or policies that inhibit discrimination (Van Huijgevoort, 2017). The percentage of women on the board, female
managers, female employees, policies for promoting diversity, equal opportunity, and board diversity, together with flexible hours, day care, and maternity leave benefit schemes have also been used (Morgan Stanley, 2016).

Given that studies addressing information disclosure on gender equity are very recent and as there were not many other works on which to base our study, we decided to investigate among social, economic and environmental indicators from the Thomson Reuters database that are also present in the GRI indicators. These indicators include: gender, female, women, diversity and governance, diversity and employees (GRI 405-1), hours of training per employee/gender (GRI 404-1, 404-2), salary ratio (GRI 405-2, 202-1), discrimination (GRI 406-1), as well as terms such as day care centres, maternity leave, board of directors, management positions, occupation of positions, promotions, and even words and expressions mentioned in the studies of Morgan Stanley (2016) and Van Huijgevoort (2017).

The dependent variable – the degree of gender equity disclosure – encompasses aspects inherent to fairness in opportunities for men and women and to the balance between personal and professional life vis-à-vis generating women’s well-being, in a total of 10 indicators. To measure the degree of gender equity disclosure, we collected data relating to a company’s position regarding gender issues, according to indicators available in the Thomson Reuters database, as described in Table 1.

Table 1
Indicators to measure gender equity disclosure

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Description</th>
<th>Gender Equity Disclosure (DGEN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy regarding board gender diversity</td>
<td>Does the company have a policy regarding the gender diversity of its board?</td>
<td>If false: “0”; If true: “1”</td>
</tr>
<tr>
<td>Percentage of women on the board of directors</td>
<td>Percentage of women on the board of directors.</td>
<td>If not informed: “0”; If informed: “1”</td>
</tr>
<tr>
<td>Percentage of women executive employees</td>
<td>Percentage of women executive employees</td>
<td>If not informed: “0”; If informed: “1”</td>
</tr>
<tr>
<td>Percentage of women employees.</td>
<td>Percentage of women employees</td>
<td>If not informed: “0”; If informed: “1”</td>
</tr>
<tr>
<td>Percentage of women managers.</td>
<td>Percentage of women managers</td>
<td>If not informed: “0”; If informed: “1”</td>
</tr>
<tr>
<td>Day Care Services</td>
<td>Does the company claim to provide day care services for its employees?</td>
<td>If not informed: “0”; If informed: “1”</td>
</tr>
<tr>
<td>Flexible Working Hours</td>
<td>Does the company claim to provide flexible working hours or working hours that promote a work-life balance?</td>
<td>If not informed: “0”; If informed: “1”</td>
</tr>
<tr>
<td>Diversity and Opportunity Controversies</td>
<td>Number of controversies published in the media linked to workforce diversity and opportunity (e.g., wages, promotion, discrimination, and harassment).</td>
<td>If not informed: “0”; If informed: “1”</td>
</tr>
<tr>
<td>Diversity and equal opportunity policy</td>
<td>Does the company have a diversity and equal opportunity policy?</td>
<td>If not informed: “0”; If informed: “1”</td>
</tr>
<tr>
<td>Diversity and equal opportunity targets</td>
<td>Has the company set targets or objectives to be achieved on diversity and equal opportunity?</td>
<td>If not informed: “0”; If informed: “1”</td>
</tr>
</tbody>
</table>
By examining 10 indicators, gender equity disclosure can assume integer values from 0 to 10 points for each company, and may be described as a discrete variable. In the 3,726 companies, a total of 37,260 records were analysed each year and, over 10 years, 372,600 observations were tested in order to obtain the degree of gender equity disclosure.

3.3 EXPLANATORY VARIABLES

In line with the three levels identified in the theoretical support, the parameters presented in Table 2 were used to dimension the explanatory variables. The source of information used, its measurement as well as previous studies that support adoption of the variable are also identified.

Table 2
Details of explanatory variables

<table>
<thead>
<tr>
<th>Level</th>
<th>Explanatory variables</th>
<th>Indicators</th>
<th>Source</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro</td>
<td>Enforcement (ENF)</td>
<td>Rule of Law: Estimate</td>
<td>Worldwide Governance Indicators, of World Bank (2019)</td>
<td>Score by country, ranging from -2.5 (lower rule of law) to +2.5 (greater rule of law)</td>
</tr>
<tr>
<td>Macro</td>
<td>Ease of obtaining financial resources (FIN)</td>
<td>Financing through local equity market</td>
<td>Global Competitiveness Index (GCI) of World Economic Forum [WEF] (2018)</td>
<td>Score by country, ranging from 1 (extremely difficult) to 7 (extremely easy)</td>
</tr>
<tr>
<td>Macro</td>
<td>Quality of the education system (EDU)</td>
<td>Quality of the education</td>
<td>GCI of WEF (2018)</td>
<td>Score by country, ranging from 1 (not satisfying at all) to 7 (highly satisfactory)</td>
</tr>
<tr>
<td>Macro</td>
<td>Cooperation in labour-employer relations (UNI)</td>
<td>Cooperation in labour-employer relations</td>
<td>GCI of WEF (2018)</td>
<td>Score by country, ranging from 1 (generally confrontational relationship) to 7 (generally collaborative relationship)</td>
</tr>
<tr>
<td>Macro</td>
<td>Popular participation (PPP)</td>
<td>Voice and Accountability: Estimate</td>
<td>Worldwide Governance Indicators, of World Bank (2019)</td>
<td>Score by country, ranging from -2.5 (lower voice and accountability) to +2.5 (greater voice and accountability)</td>
</tr>
<tr>
<td>Macro</td>
<td>Power distance (PDS)</td>
<td>Cultural dimension of power distance</td>
<td>Hofstede (2022)</td>
<td>Score by country, ranging from 0 (no power distance) to 100 (maximum power distance)</td>
</tr>
<tr>
<td>Macro</td>
<td>Economic development (GDP)</td>
<td>Logarithm of Gross Domestic Product (GDP) per capita</td>
<td>World Bank (2019) and International Monetary Fund (2019)</td>
<td>Score by country</td>
</tr>
</tbody>
</table>
### 3.4 HIERARCHICAL ANALYSIS

Hierarchical analysis involves studying the behaviour of individuals who can be clustered into different types of groups, with variables that can describe the individuals and others that characterize the group. It can also be used to explore situations involving geographical issues (Kreft and Leeuw, 1998). This model thus comprises explanatory variables belonging to different levels, which allowed us to study characteristics of companies, sectors, and countries in the same model.

### 3.5 PROCEDURES AND STATISTICAL ANALYSIS OF DATA

In the context of CSR research, in addition to the studies by Bar-Haim and Karassin (2018) and Orlitzky et al. (2017) already mentioned in the previous section, the works of Amorim et al. (2021) and Soares et al. (2020) also make use of multilevel analysis—more specifically, hierarchical linear modelling (HLM)—to study the influence of macro, medium, and micro aspects on companies’ socio-environmental performance.

Since the dependent variable presents positive discrete values and is restricted to a certain number of occurrences, the problem should be addressed through non-linear longitudinal regression models; that is, the Poisson or negative binomial regression model (Fávero and Belfiore, 2017). However, according to the central limit theorem, when working...
with large samples (more than 30 observations), the distribution comes closer and closer to a normal distribution (Fávero and Belfiore, 2017).

As it was possible to apply the linear hierarchical model, we initially use the empty model or only the intercept or null model; that is, without any explanatory variable (Hair Júnior and Fávero, 2019; Puente-Palacios and Laros, 2009). This model –expressed by Equation 1– allows us to distinguish which level can contribute more/to a greater degree to explaining gender disclosure.

\[
DGENij = \gamma_{00} + \mu_{0j} + e_{ij}
\]  

(1)

In equation 1, the dependent variable gender disclosure is represented by \(DGENij\), such that \(i\) represents the company in country \(j\). The intercept of the equation (\(\gamma_{00}\)) represents the average of companies’ expected gender disclosures based on the null model (Hair Júnior and Fávero, 2019). The terms \(\mu_{0j}\) and \(e_{ij}\) are, respectively, the residuals of the macro level and the micro level and report the random or variable effects, demonstrating the ability to explain these levels (Puente-Palacios and Laros, 2009). Naturally, when there is an intermediate level, the residuals from this level must also be considered.

Continuing the steps, after the null model, we use the complete multilevel model, set out in Equation 2. We include the variables of the three levels studied that can reveal what aspect of the levels influence gender disclosure. The dependent variable is represented by \(DGENijkt\), such that \(i\) represents the company in country \(j\), in sector \(k\), in year \(t\). The explanatory variables are accompanied by \(Ci\), which is decomposed in Equation 3 and is formed by \(\tau\), which corresponds to the country’s random effect; \(\varepsilon\) to the random effect of the sector; \(r\) to the random effect of the company; and \(u\) to the residual random effect.

\[
DGENijkt = \alpha_0 + \beta_1(ENF_{it}) + \beta_2(EFF_{it}) + \beta_3(FIN_{it}) + \beta_4(EDU_{it}) + \beta_5(UNI_{it}) + \beta_6(PPP_{it}) + \beta_7(PDS_{it}) + \beta_8(GDP_{it}) + \beta_9(STR_{it}) + \beta_{10}(RPS_{it}) + \beta_{11}(WBO_{it}) + \beta_{12}(OUN_{it}) + \beta_{13}(SIZ_{it}) + \beta_{14}(RENI_{it}) + \beta_{15}(GRI_{it}) + Ci + \varepsilon it
\]  

(2)

\[
Ci = \tau + \varepsilon + r + u
\]  

(3)

We also carried out other similar analyses, segregating companies from North America and Asia, to analyse the geographical effect so as to verify whether results differ in those regions. This was done because these regions have the bulk of the companies in the sample.
4 RESULTS

Table 3 shows the variable and fixed effects based on the results of the null test estimated with maximum likelihood (ML).

Table 3
Null Model Test

<table>
<thead>
<tr>
<th>Description</th>
<th>Fixed Effect</th>
<th>Variable Effects</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient ($\gamma_0$)</td>
<td>5.7902</td>
<td>Macro level</td>
<td>1.9392</td>
<td>0.4764</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.2065</td>
<td>Medium level</td>
<td>0.0873</td>
<td>0.0608</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Micro level</td>
<td>5.3428</td>
<td>0.1390</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Residue</td>
<td>5.8324</td>
<td>0.0450</td>
</tr>
</tbody>
</table>

The coefficient values were considerably higher than their respective standard errors, suggesting there is significance to explain the variance (Hair Júnior and Fávero, 2019), except for the medium level, whose result of the division between these values gave 1.43 (0.0873/0.0608). When this division, which results in a z score, is below 1.96, it indicates that the estimated coefficient is not significant at 5% (Puente-Palacios and Laros, 2009). The null model thus suggests that the economic sector (medium level) does not present statistical significance to explain variations in gender disclosure, which would be an unfavourable argument for the use of multilevel analysis. This result contradicts those obtained by Gawel and Mroczek-Dąbrowska (2021) and Karassinn and Bar-Haim (2016) in which the medium level prevailed when explaining the issue. However, the country (macro level) does display statistical significance, as observed in CSR research (Soares et al., 2020), thereby justifying the use of hierarchical analysis.

Based on the variable effects coefficients of the null model, it is possible to estimate the interclass correlation coefficient (ICC), which describes the similarity of responses observed within the same group, providing a measure of variation (West et al., 2007). These values can be obtained by establishing a percentage relationship between the coefficients of the variable effects of the null model (Amorim et al., 2021), shown in Table 4. In other words, this statistic indicates the explanatory power of each level in percentage terms, as shown in Table 4.

Table 4
Explanatory capacity based on the Interclass Correlation Coefficient (ICC)

<table>
<thead>
<tr>
<th>Variable Effects</th>
<th>Coefficient</th>
<th>%</th>
<th>% Accumulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro level</td>
<td>1.9392</td>
<td>14.69%</td>
<td>14.69%</td>
</tr>
<tr>
<td>Medium level</td>
<td>0.0873</td>
<td>0.66%</td>
<td>15.35%</td>
</tr>
</tbody>
</table>
We concluded that approximately 15% of variance in gender disclosure can be explained by country characteristics. Adding the sector in which the company operates, the explanatory capacity increases to just over 15% (remembering, however, that the reliability of this level was not statistically significant). Explanatory capacity finally increases to about 56% when firm characteristics are added. Such conclusions are relevant, because if the variance explained by the higher levels were negligible or very low, there would be no basis for continuing to use multilevel or hierarchical modelling.

Based on the result of the likelihood-ratio test of the null model, whose $X^2$ was reported as equal to zero, we reject the null hypothesis that the random coefficients or variables are equal to zero. This leads us to discard the use of traditional linear regression (Hair Júnior and Fávero, 2019).

Subsequently, we used the linear hierarchical model. Full multilevel analysis revealed that enforcement capacity, pressure from unions, popular participation, and economic development positively influence gender disclosure. These results are consistent with those of Baughn et al. (2007), Clisby (2005), Ioannou and Serafeim (2012), Jensen and Berg (2012) and Lattemann et al. (2009).

Financing through the capital market was found to have a negative impact. This result runs counter to that reported by Ioannou and Serafeim (2012) and Jensen and Berg (2012). Government effectiveness, the quality of the education system, and distance from power had no influence, which does not confirm the results of Branisa et al. (2013), Garcia-Sanchez et al. (2016), Ioannou and Serafeim (2012) and Turban and Greening (2000).

We also tested whether the issue might be influenced by some local peculiarity, and we applied an additional analysis comparing companies headquartered in North America—which represent 43% of the observations— with the remainder.

We found that country-level variables in North America are not significant when explaining variations in gender disclosure, given that the result of dividing its coefficient and the respective standard error gave 1.03 (0.3856/0.3729); that is, less than 1.96, indicating that the estimated coefficient is not significant at 5% (Puente-Palacios and Laros, 2009). Adding the fact that the sector level explains only 2.5% of the variance, we conclude that, due to the low explanatory capacity of the higher levels, multilevel modelling is not suitable for the group of companies in North America. Only having three countries on this continent may be contributing.
to this situation. The result for companies from other countries shows an improvement in the explanatory capacity at the country level and, mainly, at the sector level when compared to the global analysis. However, the micro level still prevails.

Exploring local peculiarities in greater depth, the result was tested when excluding companies headquartered in Asia, which correspond to 28% of observations, the second highest percentage. We observed that country and sector levels in Asia explain 13% of variations in gender disclosure. This percentage is lower than calculated in the other scenarios, but is enough not to be disregarded, and possibly justifies adopting multilevel analysis. Having 19 countries on this continent may contribute to this conclusion. The result for the other companies is very similar to the global analysis, with the micro level prevailing, thereby giving greater robustness to support research hypothesis 3 and consequently, rejecting hypotheses 1 and 2.

Finally, all these results lead to the conclusion that, as observed in other research (Orlitzky et al., 2017), gender disclosure is more sensitive to firm characteristics such as trade union representation, as pointed out by Bergmann et al. (2019), size as affirmed by Quéré et al. (2018), or adoption of GRI guidelines, as contended by Diouf and Boiral (2017).

5 DISCUSSION

Based on an analysis of companies worldwide, we identify which firm characteristics (micro level) most influence the decision to adopt measures aimed at promoting gender equity and disclosure, and find that these account for approximately 40% of variations.

Deepening the discussion on the variables, results show that the existence of unions is positive; that is, these organizations exert pressure that furthers gender equity by promoting a balanced work-life, justice in terms of occupying positions and gaining promotions, and by reducing the wage gap between men and women. It is therefore important to strengthen trade unions, since these institutions performing weakly will only serve to aggravate gender inequality (Bergmann et al., 2019). This finding is important in alerting to the key role played by institutions that establish the rules for the business environment as regards establishing mechanisms to create and strengthen unions.

Company size is also an important driver for gender equity, and attention should be paid to small businesses, as this environment favours gender inequality. In this case, policymakers and non-governmental organizations should create specific guidelines for this type of company, encouraging action that promotes gender equity and its disclosure –although according to the Workplace Gender Equality Agency (2022) some organizations are already doing so.
In this way, the UN’s performance through the Global Compact, signing agreements with companies and providing guidelines that promote gender equity, merits highlighting. GRI Standards are another good example. They have a specific document (GRI 405) identifying guidelines for companies to disclose management approach to diversity as well as equal opportunities and employee numbers, occupation of positions and remuneration. Initiatives like these must be strengthened and expanded to adapt to different levels of companies. Control mechanisms in large companies can make them address gender equity issues, although it is in the small business environment where even greater attention needs to be focused. It is also important to further the discussion on public policies that encourage employee participation in unions (Bergmann et al., 2019), when stimulating practices that boost female quotas on boards (García-Sánchez et al., 2020), and when addressing the role of non-governmental institutions that propose adherence to commitments aimed at promoting gender equity (Mogaji et al., 2021). However, the context of company characteristics cannot be overlooked, since country aspects (macro level) account for 15% of variations of the phenomenon studied, such that they are also a key factor to consider.

Rules that promote a balanced work-life, day care service and maternity leave among others, together with inquiry into possible non-compliance with these rules (Rao and Tilt, 2016), have proven to be an effective instrument for gender equality. Unions are also attentive to gender equity and one further approach involves strengthening the performance of these organizations in order to be aware of possible deviations from rules that promote gender equity, combining their actions so as to increase enforcement. Gender equity can also be enhanced by active citizen participation (Clisby, 2005), pushing for norms such as those cited here, or by simply addressing this issue. Fighting for women’s rights makes a difference, and greater disclosure on the subject is seen to help with this fight.

In contrast, financing through the capital market had an unexpected negative impact. Although there are more and more ways for companies to demonstrate their commitment to gender equity, this does not seem to be reaching all firms, especially small businesses, as we have seen, and this aspect still demands attention from governmental and non-governmental entities.

However, there are regional peculiarities. For example, developing a model with multilevel analysis for North American companies is not relevant, as there is no substantial increase in the capacity to understand the issue. Facts like these should be considered by transnational entities that seek to promote gender equity.

As regards the explanatory capacity of the medium level, we find it to be very low or
not statistically significant. Even in the scenario involving only Asian companies, where it reaches the greatest explanatory power, it remains low.

Our paper’s link to previous studies comes mainly from a global perspective, since our study is conducted at an international level and explores a totally novel subject in the literature—gender disclosure. Our results impact the state of the art on the subject since—from a multinational perspective—because to identify the alignment between characteristics of the three levels and, specifically, gender equity disclosure. We also show that—of the three levels—the micro level has the greatest impact on the subject and we highlight the repercussion for companies, society, government, stock exchanges, non-governmental organizations and other institutions with regard to the actions needed to reduce inequalities.

The greatest implication, however, is the practical application for companies and their daily management, and focuses on improving their performance, disclosure and transparency in terms of gender behaviour. In addition, given the importance of the gender factor and its particular relevance for companies, it is crucial that governments and the different sectors of society emphasize this key social and CSR aspect.

This study reveals how it is company characteristics that most influence gender equity disclosure, although it also shows how country characteristics do have an impact. A greater awareness of what influences the issue helps to better understand the gaps that exist between men and women in companies, and so provide the grounding for the actions of policymakers and non-governmental organizations aimed at promoting gender equity in the business environment.

In this regard, linking the enforcement of a country’s gender equality norms with the strong unionization of a company’s employees represents an effective measure. However, the influence of country characteristics varies according to regions, and is a factor which should be considered by transnational entities when dealing with the subject. In contrast, sector characteristics were not found to exert any influence.

Another implication of the results is that initiatives designed to promote gender equity and its disclosure must consider company size, because the smaller the company, the greater the possibility of gender inequality. Initiatives such as the Global Compact and GRI Standards must therefore be taken in account.

Additionally, in practical terms the study makes a key contribution to entities that constantly carry out surveys on this subject. The study also has repercussions in economic areas such as the capital market, its participants, investors, lenders, companies, and their employees, who seek indicators of gender equity disclosure because they may identify which factors drive
the phenomenon. Finally, as regards the social impact of this study, the results can be used by policymakers and can help them to improve public policies aimed at promoting gender equity in the business environment.

From a theoretical point of view, the research has a relevant impact, as it is the first work to identify the alignment between the multilevel approach and gender equity disclosure. In previous research, alignment is with CSR practices in general, and is not as specific as the one promoted here. This is important since it allowed us to identify—in the context of NBS—which country factors influence gender equity disclosure.

For academia, the paper contributes by offering a fresh approach to explore a relevant yet scarcely studied phenomenon—gender related CSR disclosure—and to innovate by using multilevel analysis.

6 CONCLUSION

Our paper specifies how multilevel characteristics influence gender equity disclosure. We thus fill a crucial gap in the literature on gender equity disclosure by identifying the drivers of this relationship. To do this, we use the HLM method, proposing: 1) an original measure of the degree of gender equity disclosure, and 2) a model that specifies the impact of multilevel characteristics on gender disclosure.

Our main conclusion reveals that gender equity and its disclosure have mainly been influenced by company characteristics. When seeking to improve gender equity, we must therefore essentially act in companies. Encouraging public policies, campaigns by non-governmental organizations, and trade union action aimed at changing the reality of companies are good options. The present research has also shown that theoretical aspects of NBS, involving political, financial, work, cultural, and economic subsystems, find empirical support when attempting to explain gender disclosure in companies.

The main finding to emerge from this research is that company characteristics (micro level) influence gender equity and its disclosure more than others, although a country’s actions may also contribute. Aspects related to enforcement, pressure from unions, popular participation, economic development, and financing through the capital market must be considered. However, these factors are seen to exert less of an influence than firm characteristics (micro level), and it is this latter aspect that should be the focus when seeking to understand how gender disclosure behaves. Nevertheless, as seen, there are local specificities that must be considered, such that any measures which are too generic must be avoided, as they
do not work in the same way globally.

The scant literature on the topic has enabled us to innovate by aligning aspects of institutional theory and the National Business System with the gender equity disclosure approach. Our results confirm that political, financial, work, cultural, and economic subsystems influence the issue studied. This is the first article to explore the variables that impact gender equity in companies and its disclosure, and the work therefore makes a significant contribution to economics and management literature. Finally, the insights to emerge from this discussion show that there are many opportunities available to promote gender equity and to explain its disclosure, but that some aspects still need attention.

ACKNOWLEDGEMENTS

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REFERENCES


Khan, S.N., & Kamal, A. (2021). Investigating corporate social irresponsibility (CSIR) and its impact on social judgments in the weak institution: moderating the role of corporate ability.
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