

COMPARATIVE ANALYSIS OF THE ROLE OF GENDER EQUALITY IN ENVIRONMENTAL, SOCIAL, AND GOVERNANCE PERFORMANCE ACROSS BELGIUM, DENMARK, LUXEMBOURG, AND HUNGARY

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This paper examines the impact of gender equality on the Environmental, Social, and Governance (ESG) performance of Belgium, Denmark, Luxembourg, and Hungary, focusing on the proportion of women in leadership positions. Utilizing a comparative, index-based approach, the research evaluates data from 2011 to 2021 using indicators such as the Sustainable Development Goals (SDG5), Human Development Index (HDI), and Social Progress Index (SPI). Findings reveal that Belgium and Denmark exhibit the highest gender equality progress in leadership, while Hungary lags despite minor improvements. Contradictions between national and European statistical data highlight discrepancies in reporting methodologies, particularly regarding the public and private sectors. The paper examines the correlation between higher female representation in leadership and improved ESG performance, suggesting that increased gender diversity contributes to corporate sustainability. Research limitations include data inconsistencies across statistical sources and the exclusion of sector-specific analyses. The findings provide valuable insights for policymakers and corporate governance stakeholders, reinforcing the necessity of achieving the EU-mandated 40% female leadership quota by 2026. The paper's originality lies in its comprehensive, multi-index evaluation, offering a nuanced perspective on gender equality's role in ESG performance within the examined European countries.

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1 Introduction

Gender equality, particularly the representation of women in leadership positions, remains a critical issue in the 21st century (UN Women, 2023). Despite numerous advancements, women still hold only 31.5% of leadership positions globally as of 2022, with even lower figures in Hungary (9,4%), where the share of women in leadership remains below the European Union (abbreviation: EU-27) average. In response to these imbalances, the EU-27 has implemented several policies to promote gender equality, including the Gender Equality Strategy (2020-2025) and the "Women on Boards" Directive. The latter mandates that by 2026, listed companies must ensure that at least 40% of their board members are women (European Council, 2025).

Systemic barriers, such as the "glass ceiling" phenomenon, continue to hinder women's career advancement (Nagy Beáta, 2005; Ryan & Haslam, 2005).

While progress has been made—demonstrated by the increasing presence of women in executive roles—female leadership remains the exception rather than the norm. Some countries have implemented policies, such as quota systems, to accelerate progress, while environmental-social-governance (abbreviation: ESG) criteria now require corporations to report on gender equality metrics (Galsanjigmed & Sekiguchi, 2023; Pounder et al., 2023). Given these ongoing challenges, it is essential to analyse how different countries perform in terms of gender equality, particularly in leadership positions (Galsanjigmed & Sekiguchi, 2023; Pounder et al., 2023). This paper compares Hungary, Belgium, Denmark, and Luxembourg, examining gender representation in leadership within the broader context of corporate competitiveness and environmental performance. The selected countries exhibit diverse economic structures, corporate governance frameworks, and varying degrees of gender equality in leadership positions. Belgium, Denmark, and Luxembourg exemplify economies with robust ESG commitments and relatively high female representation in leadership roles, which provides a valuable contrast to Hungary's lower gender diversity at the top (Eurostat, 2024; Tyrowicz et al., 2020).

This comparative analysis enables a deeper exploration of the interplay between corporate competitiveness, environmental performance, and gender equality across different European settings. By evaluating these factors, the research aims to assess whether Hungary's low proportion of female leaders constitutes an anomaly or aligns with broader patterns across EU member states.

2 Literature review

The notion of the necessity for women's representation in positions of leadership has been repeatedly questioned. Often posed by men, this inquiry reflects a persistent scepticism regarding gender diversity in corporate governance (Galsanjigmed & Sekiguchi, 2023; Pounder et al., 2023). The response, supported by empirical evidence, is clear: gender diversity in leadership is economically advantageous. From a business perspective, gender diversity in leadership is a financially sound decision that aligns with the principle of double materiality, encompassing both financial and ESG considerations (Girardone et al., 2021). Empirical research has shown a positive correlation between gender diversity in leadership and stronger organisational performance (Hunt et al., 2018; Mothe & Nguyen-Thi, 2021; Tenner & Hörisch, 2021). Companies with greater female representation in executive roles often achieve better financial outcomes, highlighting the broader economic benefits of inclusivity (Galsanjigmed & Sekiguchi, 2023; Hunt et al., 2018; Portfolio, 2023). Beyond financial success, gender diversity plays a crucial role in cultivating a more balanced, inclusive, and equitable corporate culture, with far-reaching implications for governance and broader strategic (Hunt et al., 2018). Research has shown that there are cognitive differences between men and women, which, while not inherently superior or inferior, can significantly influence leadership dynamics and organisational behaviour (Ágnes Valló et al., 2002). According to Ágnes Valló et al. (2002), women may more frequently engage cognitive processes associated with creativity and integrative thinking, which can contribute to more open-minded and innovative approaches to problem-solving. (Ágnes Valló et al., 2002) This cognitive trait fosters a willingness to consider diverse perspectives and alternative viewpoints, which is essential in today's complex business landscape. Furthermore, these characteristics contribute to improved decision-making, better negotiation outcomes, and overall corporate adaptability (Ágnes Valló et al., 2002). Such attributes are invaluable in navigating

the challenges of an increasingly interconnected global economy, reinforcing the idea that gender diversity brings a broad range of benefits to organisations across various sectors (Ágnes Valló et al., 2002). Gender-balanced leadership offers consumer-oriented advantages, including better market understanding and customer engagement. Women comprise a significant proportion of global consumers, so businesses that integrate female perspectives can better meet diverse needs, leading to increased sales and brand loyalty (Hunt et al., 2018). Gender diversity in leadership is also a strategic investment that signals corporate commitment to equity, enhancing brand image and reputation. Moreover, gender-balanced leadership inspires future generations of aspiring female professionals, helping to dismantle societal biases and foster an inclusive professional landscape (Hunt et al., 2018). Despite ongoing challenges, this paper examines how gender diversity in corporate leadership has evolved across select EU-27 member states, including Denmark, Belgium, Luxembourg, and Hungary. By analysing cross-national trends and policy frameworks, the research aims to identify factors influencing gender equity and best practices for fostering a more inclusive corporate environment. Understanding these regional variations can inform broader discussions on the efficacy of gender diversity policies and pathways toward greater representation of women in leadership.

3 Methodology

This paper examines gender equality, focusing on the representation of women in leadership roles, by comparing Belgium, Denmark, Luxembourg, and Hungary from 2011 to 2021. Various data sources and measures are used to understand and compare the proportion of women in leadership positions in these countries, as well as the factors affecting this representation. The following describes the data collection, processing, and analysis methods employed.

3.1 Data Collection, Processing, and Comparison

The primary data sources for this research were the EUROSTAT and the Hungarian Central Statistical Office databases. Data for the years 2011 to 2021 served as the foundation of the paper, as these years provided the most comprehensive and reliable information regarding progress on gender equality in leadership roles.

3.1.1 Eurostat Data

The Eurostat database contains data on the representation of women in leadership positions across different countries. Analysis of the data from 2011 to 2021 for Belgium, Denmark, Luxembourg, and Hungary revealed varying trends:

- Belgium and Luxembourg experienced continuous but varying rates of increase in the representation of women in leadership roles, while Denmark saw a significant rise in 2017, followed by a subsequent decline.
- In Hungary, stagnation and even a decrease were observed, highlighting concerns about gender equality in leadership positions.

Data for these countries were downloaded from the Eurostat database, and a comparison of the proportion of women in leadership roles was made across these nations.

3.1.2 KSH Data

According to data from the Hungarian Central Statistical Office, the percentage of women in leadership roles within the ISCO-1 major occupational group in Hungary rose to 36.6% in 2021. In contrast, EU-27 data showed a decrease to 9.4%. This difference is due to the varying representation of women in leadership positions between the public and private sectors, with more women in leadership roles in the public sector compared to the private sector.

3.1.3 Indices Data

Three key indices were utilized in this research to measure gender equality and socio-economic development: Sustainable Development Goals (abbreviation: SDG) index, Human Development Index (abbreviation: HDI), Social Progress Index (abbreviation: SPI). These indices provided a more objective understanding of the socio-economic development of the countries studied and their correlation with progress in gender equality.

3.2 Standardisation and Analytical Methods

The first step involves standardising the baseline data with various units and dimensions into a common metric scale, following the methods described by Belak & Nedelko, 2024; Macher et al., 2023; Macher & Szigeti, 2024; Szabó et al., 2023.

The next step is to define a benchmark, where the values of EU-27 Member States are compared to the maximum value in the set. This is followed by calculating the Euclidean distance, which shows how far the indicators are from a specific reference point. Finally, an integrated index with uniform dimensions is computed for a three-axis matrix analysis. This novel integration of benchmarking with Euclidean distance and matrix-based index construction offers a unique methodological framework for cross-country comparison, which has not yet been widely applied in the context of gender equality in leadership roles.

4 Results

From 2011 to 2021, women's representation in EU-27 leadership roles fluctuated, averaging 33.09%. The percentage initially declined to 32% before recovering to 35% by the end. These variations suggest uneven progress in gender equality, reflecting ongoing challenges women face in leadership. The data reveals significant differences in gender equality progress across EU-27. In 2011, Norway, Latvia, and Finland had the highest representation, later joined by Iceland and France. Among the countries analysed, some showed mixed progress, while Hungary consistently ranked near the bottom. These findings highlight the divergent trajectories of gender equality in the EU-27, with some countries advancing substantially while others saw little improvement. A comparative analysis using international gender equality indices, such as the SDG index, HDI, and SPI, provides further context for these trends. Standardising these indices and calculating Euclidean distances reveals significant differences between the selected countries over time (Figure 1.).

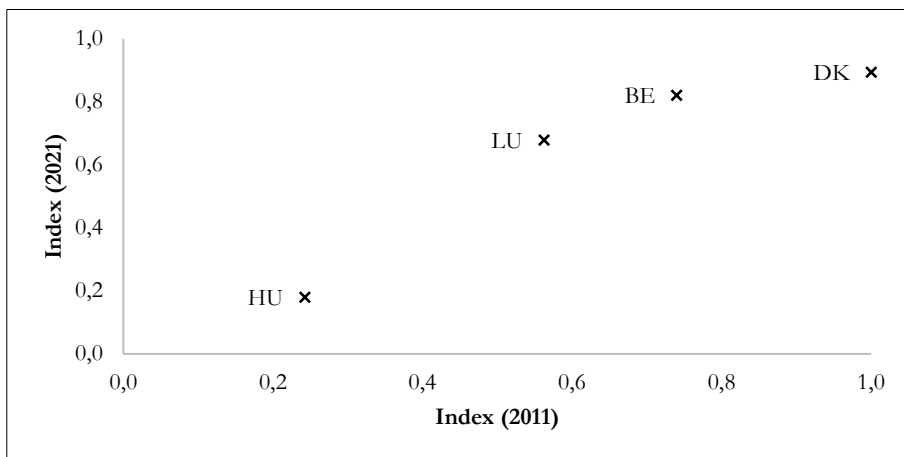


Figure 1: Index-based comparative analysis of the countries examined

The results show that Luxembourg had the largest positive shift, with a 20.6% increase in the proportion of women in leadership positions. Belgium also improved, with a 10.92% rise. In contrast, Denmark, despite initially leading in gender equality, experienced a 10.65% decline. The most pronounced negative trend was in Hungary, where the proportion of female leaders decreased by 25.88% over the decade.

5 Discussion

The analysis of index-based metrics indicates positive developments in gender equality from 2011 to 2021, particularly in the representation of women in leadership positions. Belgium and Luxembourg demonstrated the most substantial improvements. While the proportion of women in leadership roles increased across the four nations, women continue to be an underrepresented group, especially in senior-level positions (Központi Statisztikai Hivatal, 2022). Overall, the EU-27 experienced an upward trend in female leadership representation, with Denmark and Belgium exhibiting the most significant (Eurostat, 2024). Belgium's female leadership proportion rose remarkably from 10.9 % to 37.9 %, the highest among the countries studied. Luxembourg quadrupled its female leadership representation from 5.60 % to 22.4 %, and Hungary also showed progress, albeit at a slower pace, from 5.30 % to 9.40 %. The EU-27 countries exhibited varying rates of growth in female leadership representation over time. While Belgium and Denmark emerged

as top performers, achieving higher percentages of women in leadership roles, this was not universally accompanied by stronger economic growth across the region (Social Progress Imperative, 2024). The data revealed an inverse correlation between female leadership rates and overall growth rates. Luxembourg and Hungary made some progress but lagged their peers in advancing gender equality at top leadership levels. The path to parity remains uneven, underscoring the need for sustained efforts to promote women's advancement and leadership opportunities across the EU-27 (Bodnár Éva & Sass Judit, 2024; European Institute for Gender Equality, 2017; Hunt et al., 2018). Gender equality varied among these states but generally improved over time. The EU-27 aims for 40% women in leadership roles at publicly listed companies by 2026. Progress toward full equality remains slow, though Belgium and Denmark have succeeded in increasing female representation in leadership. Achieving complete gender equality will be a gradual process across the EU-27. Promoting gender equality is vital for social justice, economic progress, and environmental stewardship.

6 Conclusions

The paper examines the progress of gender equality in leadership roles across the nations studied from 2011 to 2021. The findings show a generally positive but gradual trend, particularly in Belgium, Denmark, and Luxembourg. These countries saw significant growth in women's representation in managerial positions, with Belgium having the largest increase among the examined states. However, women remain underrepresented in top-level leadership roles, especially in Hungary, where the growth has been slower. At the EU-27 level, the data indicates a consistent rise in women's representation in leadership, though the pace has varied. The EU-27's ongoing initiatives, including legal actions to increase the proportion of female executives in publicly traded companies, demonstrate its commitment to promoting gender parity. Yet, achieving full gender equality in leadership remains a major challenge, as many EU-27 Member States continue to see slow progress in this area. In conclusion, the data shows a gradual yet positive trend toward greater gender parity in leadership positions across the examined nations. While progress has been made, the journey to full gender representation in senior roles is ongoing. Continued advocacy for gender equality is crucial not only for advancing social justice but also for driving economic and environmental progress, ultimately benefiting societies.

The experiences of countries like Belgium and Denmark serve as examples of what can be achieved through persistent efforts and effective policies.

The research presented in this paper holds significant practical and theoretical importance for Hungary and the EU-27. It draws the attention of researchers and EU decision-makers to the fact that EU-27 statistical data primarily focuses on the private sector, neglecting the public sector and the unique data collection methodologies employed by individual member states. Consequently, the public sector is excluded from evaluations, which can distort data quality. However, these two domains should be examined in a joint context. For the specific case of Hungary, the research serves as a signal to not limit the focus solely to the public sector, but to also include the private sector, where the proportion of women in leadership positions is notably lower. This, in turn, highlights the need for greater intervention by companies. Furthermore, the findings can guide HR and other social fields, demonstrating how "best practices" from the public sector can be adapted to the private sector, potentially through country-specific support measures. This holistic approach enhances the understanding of the societal issue at hand. The research also holds value for international scholars, as it can help them avoid data interpretation errors by emphasising the importance of attending to data collection methodologies, preventing misleading conclusions. In summary, this study underscores the need for more comprehensive data provision. The joint examination of the two sectors represents an under-researched area, which can initiate a new research direction focused on gender equality and the proportion of women in leadership positions.

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