SemeAd 2024
XXVII Seminários em Administração

05, 06, 07 e 08 de novembro de 2024
ISSN 2177-3866

BUILDING A BETTER FUTURE BEYOND ACADEMIA: ALIGNING HIGHER EDUCATION INSTITUTIONS WITH SDGs

JEFERSON SILVA HENRIQUE
UNIVERSIDADE FEDERAL DO PARANÁ (UFPR)

GABRIEL GUSSO MAZZO
UNIVERSIDADE FEDERAL DO PARANÁ (UFPR)

GABRIELE DA CUNHA LOPES
UNIVERSIDADE FEDERAL DO PARANÁ (UFPR)

BÁRBARA GALLELI
UNIVERSIDADE FEDERAL DO PARANÁ (UFPR)

BUILDING A BETTER FUTURE BEYOND ACADEMIA: ALIGNING HIGHER EDUCATION INSTITUTIONS WITH SDGs

1. Introduction

The 2030 Agenda, with its 17 Sustainable Development Goals (SDGs), is a comprehensive global framework for building a better future. It offers a roadmap to address many pressing global challenges while fostering economic, social, and environmental progress (Adiyoso, 2022). The SDGs, which encompass key issues such as poverty, health, education, gender equality, clean water, affordable and clean energy, decent work, climate action, and peace and justice, provide a comprehensive and all-encompassing approach to sustainable development. HEIs are essential in advancing these goals worldwide, aligning them with the SDGs of global significance.

However, achieving these goals is increasingly challenging amid growing national tensions fueled by geopolitical rivalries, resource competition, and ideological divides (Mbah & Wasum, 2022). These tensions hinder international cooperation and collective action, exacerbate existing inequalities, and hinder progress toward Sustainable Development (SD) (Baimenov & Liverakos, 2019). Therefore, addressing global challenges and achieving the SDGs through concerted efforts to promote dialogue, cooperation, and mutual understanding among nations is essential.

SD is a global endeavor that aims to balance economic progress and global interconnectedness while addressing environmental, socioeconomic, and equity challenges (Shi et al., 2019). It has become a central focus of governmental and organizational agendas, with HEIs not just being passive participants but actively driving SD goals worldwide (Leal Filho, 2019; Saric et al., 2023). They must integrate sustainable practices into their processes, strategies, and long-term visions to remain successful and competitive in achieving SD (Calabrese et al., 2019).

The increasing trend of HEIs using global sustainable rankings for self-assessment, benchmarking, and gaining a competitive advantage underscores the significance of these rankings as strategic management tools for HEIs (Atici et al., 2021). In these assessments, such as the Times Higher Education World University Rankings (THE-WUR), the evaluation is based on HEI performance in SD (Puertas & Marti, 2019). However, the concept of sustainable performance for HEIs goes beyond academic metrics. It encompasses ethical achievement of educational, environmental, social, and financial goals, as evidenced by initiatives like 'being green,' recycling programs, and carbon emissions reduction campaigns (Laasch et al., 2020; Kerr & Hart-Steffes, 2012, p. 13). This holistic approach to sustainable performance highlights the multifaceted nature of HEIs' contributions to SD.

HEIs, like other organizations, typically operate within capitalist or mixed economies, as Nelson (2011) discussed. The institutional environment can impact organizations' SD performance, either boosting or restricting it (Ortas et al., 2019). Accounting for diverse national characteristics is a valuable guide for HEI policymakers, promoting responsible management and actions supporting SD (King, 2010).

Hall and Soskice (2001) emphasized the significance of understanding capitalism's impact on the sustainable performance of Higher Education Institutions in global rankings, given the variations in national institutional dimensions according to the Varieties of Capitalism theory (VoC). These dimensions encompass aspects such as work and industrial relations, finance, inter-HEI relations, education, and governance, delineating between Liberal Market Economies (LME) and Coordinated Market Economies (CME) (Hall & Soskice, 2001). Subsequently, in 2018, Witt et al. (2018) expanded upon this theory to include countries beyond the OECD, which were initially studied by Hall and Soskice (2001). These groups include highly coordinated economies (HCE), coordinated market economies (CME), liberal market

economies (LME), European peripheral economies (EPE), advanced emerging economies (AEE), Economies of advanced cities (EAC), Arab oil-based economies (AOE), emerging economies (EME), and socialist economies (SOE) (Witt et al., 2018).

Limited research on global sustainable rankings in HEIs underscores the need for further investigation (Veidemane, 2022). Previous studies have recommended exploring universities' impact on their countries' sustainable indexes and broadening research to analyze macroeconomic variables, institutional dimensions, and specific regions (Lauder et al., 2015; Leal Filho, 2019; Gupta & Gupta, 2020; Galleli et al., 2021; Ojeyinka & Osinubi, 2022). In line with this, our study intends to answer the following research question: *What is the contribution of HEIs to sustainable development, considering their national institutional context?*

We consider the 17 SDGs a proxy for sustainable development and the effect of national institutional dimensions based on Hall and Soskice's (2001) and Witt et al.'s (2018) proposals. We adopted a quantitative deductive method based on Panel data analysis to address the research. In the context of our study, which analyzes five years (2019-2023) of cluster average variation, panel data analysis enables us to assess how clusters' average performance changes over time while also considering differences between clusters at a given time.

Theoretical contributions enrich SD education domains with previously absent structured and comprehensive data. The study's novelty is examining HEIs' sustainable performance through the VoC in global rankings, enhancing theoretical understanding. In practical terms, it provides insights for both public and private HEIs, guiding SD-aligned investments. The study introduces a novel analytical perspective for enhancing HEIs' sustainable rankings, offering governments input for shaping SD-promoting policies. Socially, it challenges the conventional idea of the "best university" in SD, fostering societal debate and legislative adjustments.

2. HEIs contributions to SDGs

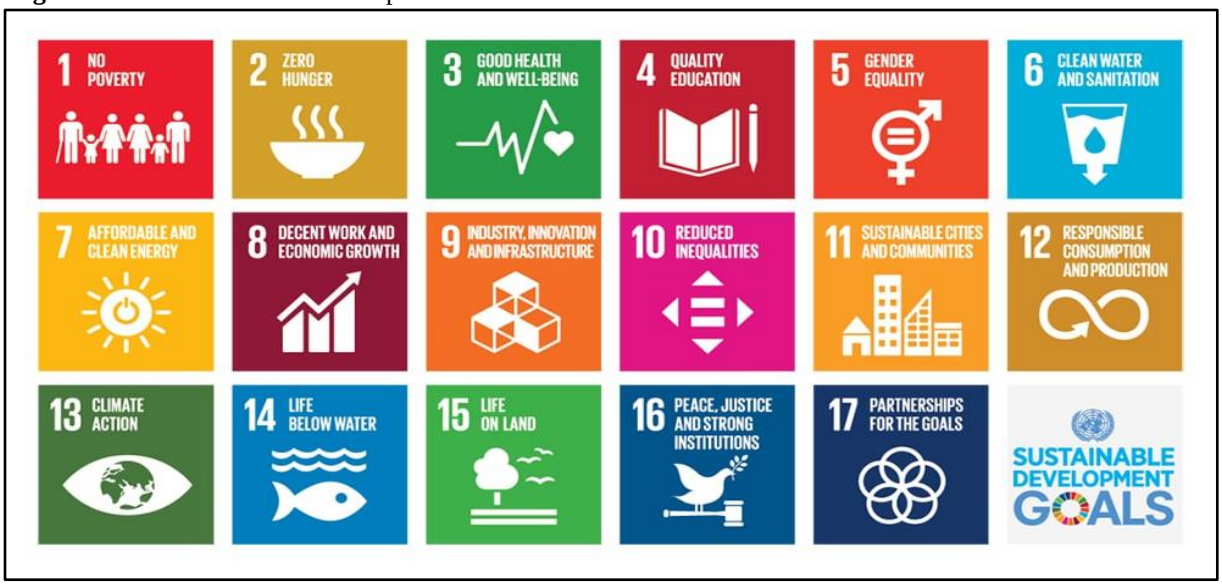
The 2030 Agenda unequivocally underscores the centrality of education in SD. While education is explicitly targeted in Goal 4, which aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities, its influence permeates nearly all other SDGs, highlighting its transversal significance (Vladimirova & Le Blanc, 2016). This integrative approach is essential for education's pivotal role toward these goals and for enhancing its impact in addressing emerging sustainability challenges (Schulla et al., 2020).

Leal Filho et al. (2019) highlight that the SDGs, a globally recognized initiative, represent a comprehensive framework consisting of goals, targets, and indicators established on September 25th, 2015, to eradicate poverty in all its forms by 2030 and promote equilibrium across the economic, social, and environmental dimensions of sustainable development. Forming an integral part of the New Sustainable Agenda, the SDGs build upon and extend the scope of the Millennium Development Goals (MDGs), which were introduced in 2001 and lapsed in 2015 (Sachs, 2012). Figure 1 shows the graphic representation of the 17 SDGs.

The adoption of the 17 SDGs entails a collective commitment by nations to integrate these ambitious objectives into their policy agendas and governance frameworks, thereby striving to realize the SDGs' overarching vision. In contrast to the MDGs, which predominantly addressed poverty and healthcare, the SDGs encompass a broader spectrum of 169 targets, encompassing emerging areas such as climate action, economic equity, technological innovation, sustainable consumption, and peacebuilding.

The SDGs highlight the imperative of addressing global inequality, as reflected in their inclusion of explicit goals aimed at tackling this issue (Freinstein & Mahlert, 2016; Kanbur, 2020). Despite this emphasis, the SDG Index reveals significant disparities in achievement, particularly among OECD countries, with the most developed nations falling short (Sustainable Development Report, 2021).

Figure 1 – The Sustainable Development Goals



Source: UN, 2015.

The Sustainable Development Report 2021 underscores that while the importance of the SDGs cannot be overstated, not all countries have equal success in their implementation. Scandinavian countries like Finland, Sweden, and Norway lead the SDG Index, illustrating the discrepancy between OECD nations and others. Regions such as Eastern Europe, Central Asia, Latin America, and the Caribbean perform above the global average, while East and South Asia are close to it. In contrast, Oceania and Sub-Saharan Africa exhibit the greatest inequality, lagging well below the global average (Sustainable Development Report, 2021).

Understanding HEIs' role in contributing to SDGs is relevant for efficient resource allocation and maximizing their impact (Searcy, 2012; Roos & Guenther, 2020). Assessing progress, ensuring accountability, and transparent reporting offer insights into contributions and areas for improvement (Dalta & Goyal, 2022). They facilitate evaluation against global standards, benchmarking, and identifying best practices (Casarejos et al., 2017). This alignment with stakeholder expectations fosters a more sustainable and responsible global society (Searcy, 2012; Laasch et al., 2020).

Despite facing criticisms, including the lack of binding commitments and insufficient financing, the SDGs function as a collaborative framework for SD efforts (Espey, 2022; Sachs & Sachs, 2021; Fukuda-Parr & Donald, 2023; Pogge, 2023; Scholte & Söderbaum, 2017; Vandemoortele, 2017; Swain, 2018). Education emerges as a component, and HEIs play a central role in executing the 2030 Agenda. Scholars emphasize their pivotal role, positioning them as significant influencers and agents of transformation aligned with the SDGs.

Recognized for spearheading SD education, HEIs contribute to sustainable skills development, design applied curricula, and cultivate future leaders, significantly impacting the achievement of all 17 SDGs through global community engagement (Nhamo & Mjimba, 2020; Tilbury, 2011; Leal Filho et al., 2019; Puertas & Marti, 2019; Hallinger & Chatpinyakoop, 2019; Menon & Suresh, 2022). HEIs actively contribute to SDGs through actions such as teaching, setting examples with initiatives like “being green”, leading in waste, water, and soil management, fostering innovation, and establishing partnerships towards SDGs (Puertas & Marti, 2019; Kerr & Hart-Steffes, 2012; Leal Filho, 2019).

Robust, sustainable actions toward SDGs enhance HEI culture centered on SD and establish them as exemplary entities (Boiocchi et al., 2023). Nevertheless, challenges include

the absence of consensus on defining a good sustainable university, limited publicity of HEIs' SDGs actions, and underdeveloped sustainable reporting (Brusca et al., 2018). Searcy (2012) recommends a comprehensive indicator system for HEIs, aiding decision-makers in addressing sustainable challenges. In response to these challenges, global sustainable rankings, such as THE Impact Ranking, emerge as alternative measures (Caeiro et al., 2013; Veidemane, 2022). Historically, rankings have predominantly focused on academic and research reputation, often neglecting sustainable concerns (Puertas & Marti, 2019).

Acknowledging the global call for SD and the pivotal role of HEIs (Leal Filho, 2019), it is necessary to engage HEIs in sustainable rankings aligned with SD (De la Poza et al., 2021). Over the past decade, several systems have emerged for classifying HEIs for SD (Veidemane, 2022). Numerous SD assessment tools in HEIs, such as AISHE 2.0, STARS, GASU, ASSC, PSIR, SAQ, SustainTool, and UniSAF, have been mapped (Caeiro et al., 2013). However, few international rankings focus on measuring SD-related actions, with notable examples being the UI Green Metric and THE Impact Ranking (THE), which assesses HEIs globally on their contributions to all 17 SDGs, providing crucial transparency on their actions and performance related to SDGs (Veidemane, 2022; De la Poza et al., 2021; Galleli et al., 2021).

It is relevant to comprehend that HEI practices toward SDGs are not in a vacuum environment. HEIs are organizations inserted into the economic environment of their respective countries, which is, most of the time, a capitalist economic environment (Nelson, 2011). The institutions within a country's capitalist systems can facilitate or hinder SDG actions for organizations (Ortas et al., 2019). As noted by Jackson and Deeg (2008), the institutional environment influences practices related to the SDGs and their performance in sustainable rankings. Given this, understanding capitalism's influence on HEIs' actions toward SDGs in global rankings is relevant due to variability in national institutional dimensions (Hall & Soskice, 2001). Therefore, comprehending capitalism's impact and institutional dimensions on HEIs' actions toward SDGs in global rankings is imperative (Hall & Soskice, 2001).

3. Variety of Capitalism and Sustainable Development

Hall and Soskice (2001) underscored the necessity of comprehending capitalism's influence on HEIs' actions toward SDGs in global rankings, considering variations in national institutional dimensions. These dimensions, covering work and industrial relations, finance, relations between HEIs, education, and governance, distinguish between Liberal Market Economies (LME) and Coordinated Market Economies (CME) (Hall & Soskice, 2001). The dualist capitalism's classification is recognized as limited to the scope of the Organization for Economic Cooperation and Development (OECD), particularly relevant in addressing current challenges toward SDGs through global community engagement (Leal Filho, 2011).

In response to this limitation, Witt et al. (2018) introduced nine additional groups, expanding the Varieties of Capitalism (VoC) framework to encompass emerging countries and other relevant players in the global trade scene. These groups include highly coordinated economies (HCE), coordinated market economies (CME), liberal market economies (LME), European peripheral economies (EPE), advanced emerging economies (AEE), Economies of advanced cities (EAC), Arab oil-based economies (AOE), emerging economies (EME), and socialist economies (SOE) (Witt et al., 2018). Table 1 presents the characteristics of these dimensions.

Table 1 – Main characteristics of VoC cluster

Clusters	Characteristics	Countries	Previous
Liberal Market Economies (LME)	Market-Based Coordination,Decentralized Decision-Making,Emphasis on	USA,UK, Australia, Canada, Ireland, New Zealand	Hall & Soskice, (2001); Sowell, (2014)
Coordinated Market Economies (CME)	Collaborative Industrial Relations, Inclusive Decision-Making Processes,Vocational Training and	Austria, Belgium, Denmark, Finland, Germany	Hall & Soskice, (2001); Hall & Gingerich,
Advanced Emerging Economies (AEE)	High Economic Growth,Diversified Economic Structure,Technological Advancements,Urbanization,Rising	Chile, Israel, South Africa, South Korea	Witt et al. (2018); Rajan, (2006); Rodrik,
Arab Oil-Based Economies (AOE)	Heavy Reliance on Oil Exports,Vulnerability to Oil Price	Kuwait, Qatar, Saudi Arabia, UAE	Witt et al. (2018); Baldini
Economies of Advanced Cities (EAC)	Global Financial Hubs,Open Economies,Strong Rule of Law,Strategic Geographical	Hong Kong	Witt et al. (2018); Enright, (2003);
Emerging Economies (EME)	Rapid Economic Growth,Industrialization and Diversification,Urbanization,Globalization and Trade,Technological	Algeria, Argentina, Bangladesh, Brazil, China, Colombia, Egypt	Witt et al. (2018); Rajan, (2006); Rodrik, (2011); Jensen
European Peripheral Economies (EPE)	Lower Economic Development,Higher Unemployment Rates,Reliance on	Czech Republic, France, Greece, Hungary, Italy, Spain	Witt et al. (2018); Eichengreen,
Highly Coordinated Economies (HCE)	Strategic Industrial Policy,Long-Term Planning,Close Collaboration Between Government and Business,Lifetime Employment	Japan	Witt et al. (2018); Streeck, (2014); Yamamura
Socialist Economies (SOE)	Public Ownership of Means of Production,Central Planning,Price Controls,Collective Bargaining	Cuba, Venezuela	Witt et al. (2018); Polanyi, (2002)

Source: Author's work (2024) based on Hall & Soskice, 2001 and Witt et al., 2018.

In examining the global perspective of SD within the VoC framework, the impact of SD is acknowledged worldwide (Žalėnienė & Pereira, 2021) and has a widespread impact (ElMassah & Mohieldin, 2020). Actions taken by individual countries concerning SD carry significant relevance, influencing local and global contexts (Garcia-Sanchez et al., 2016). Despite numerous studies analyzing factors contributing to sustainable reports in various countries, the literature lacks extensive exploration of the impact of countries' institutional characteristics on SD actions (Gallego-Álvarez & Quina-Custodio, 2017). HEIs' practices related to the SDGs and their performance in sustainable rankings are influenced by the institutional environment, as noted by Jackson and Deeg (2008).

The literature emphasizes the importance of comprehensive evidence on Sustainable Development actions across countries (Garcia-Sanchez et al., 2016). Gallego-Álvarez and Quina-Custodio (2017) critique previous studies for their limited country focus, neglecting national institutions' influence within broader macroeconomic, legal, and political contexts. Institutions significantly shape organizational practices towards achieving the SDGs, including those of Higher Education Institutions (HEIs) (Jackson & Deeg, 2008). This perspective considers labor relations, finance, intercompany interactions, education, and governance (Hall & Soskice, 2001). Grosvold and Brammer (2011) argue that diverse institutional characteristics in different countries reflect specific economic and political systems. Thus, under the Varieties of Capitalism (VoC) framework, institutional conditions influencing HEIs' SD actions vary, necessitating a nuanced analysis across multiple countries to uncover these dimensions effectively.

4. Method

4.1. Sample and variables

Our sample includes 3,749 HEIs from 59 countries, covering THE Impact ranking 2019 to 2023. The selected timeframe corresponds to the ranking's initial publication in 2019 and encompasses the period of the COVID-19 pandemic. Following Witt et al.'s (2018) clusters, we initially identified 61 countries. However, Cuba and Singapore were excluded from the analysis due to the absence of HEI information in THE ranking. In Witt et al.'s (2018) cluster classification, we found socialist economies represented by Cuba (unavailable) and Venezuela (2). These countries represented 93.70% of the world's GDP in 2022 (World Bank, 2023).

Table 2 - Number of HEIs by country

N	Country	Number of HEIs	N	Country	Number of HEIs
1	Japan	262	31	Romania	34
2	Russian Federation	230	32	Philippines	33
3	United Kingdom	220	33	Bangladesh	31
4	United States	185	34	Greece	30
5	Turkey	183	35	Peru	30
6	Spain	176	36	Hungary	27
7	India	166	37	Czech Republic	26
8	Taiwan	153	38	South Africa	26
9	Brazil	148	39	Germany	25
10	Pakistan	134	40	United Arab Emirates	25
11	Egypt	123	41	Netherlands	23
12	Australia	110	42	Vietnam	22
13	Thailand	104	43	Morocco	20
14	Canada	101	44	Kazakhstan	18
15	Malaysia	84	45	Nigeria	18
16	France	83	46	Switzerland	18
17	South Korea	76	47	Sweden	16
18	Chile	75	48	Hong Kong	15
19	Indonesia	73	49	Slovakia	14
20	Italy	73	50	Algeria	13
21	Mexico	68	51	Belgium	10
22	Colombia	62	52	Denmark	10
23	Saudi Arabia	58	53	Kuwait	9
24	Portugal	51	54	Argentina	8
25	Ireland	43	55	Israel	6
26	China	39	56	Austria	5
27	Poland	39	57	Norway	5
28	Ukraine	37	58	Qatar	5
29	Finland	35	59	Venezuela	2
30	New Zealand	34			

Source: The author's work (2024).

We assess HEIs' sustainable actions toward SDGs using THE Impact Ranking. The Times Higher Education (THE) impact ranking was launched in 2019 and stands out for being the only ranking to assess HEIs' performance concerning the SDGs, according to the 2030 Agenda for SD. In this ranking, HEIs' participation is voluntary. Scores ranging from 0 to 100 require HEIs to submit information on at least three SDGs, including SDG 17 - Partnerships for the Goals. Table 2 provides a comprehensive overview of all the HEIs studied by country.

4.2. Panel Data Analysis

We conducted panel data analysis because this approach is suitable for comprehending the SDG's performance over the years. Hair Jr et al., 2019, recommended analyzing a phenomenon like this to observe the behavior of the variables under examination throughout the time analyzed. Given our five-year study period (2019-2023), it contributes to the analysis of the SDGs in the temporal dimension in our data analysis. This study adopts the analysis of

percentual variation of the SDG performance on THE ranking approach to measure and identify the characteristics and behaviors of HEIs' sustainable performance, drawing on Sampieri et al. (2013). It also assumes an explanatory nature, aiming to identify variables that may influence the level of sustainable actions of HEIs in global sustainable rankings. The research employs a quantitative deductive method. The research applies two techniques – Panel Data Analysis and a Graphical Approach to Phenomenon - aiming for robust and comparable results (Hair Jr et al., 2019; Pindado & Requejo, 2015).

4.3.Graphical Approach of Phenomenon

Graphical analysis serves as a fundamental initial step in the quantitative data analysis process, offering a visual representation of intricate data sets to identify patterns and outliers (Koschat, 1996; Yeager, 2007). Particularly useful in exploratory studies, graphical methods such as scatter plots and probability plots aid in revealing distributional peculiarities and assessing statistical assumptions (Sachs, 1977). This preliminary exploration through graphical analysis plays a role in understanding the quantitative data and can guide further investigation. The primary aim of the graphical approach is to visually depict the behavior of data over the years within their respective clusters.

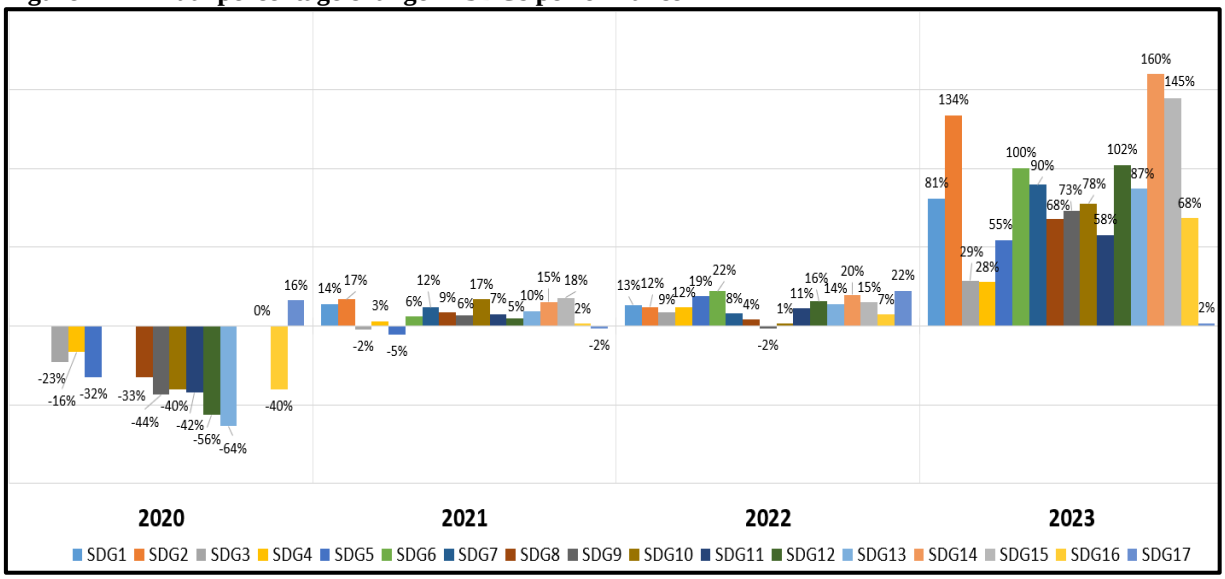
5. Results

Analyzing national performances across global countries, our study identifies the top five countries in the overall THE ranking score over five years: New Zealand (88.27), Australia (87.36), Canada (86.44), Denmark (86.25), and the United Kingdom (83.49). Conversely, the lowest-performing nations include Nigeria (54.91), Kazakhstan (51.24), Ukraine (49.73), Algeria (46.87), and Venezuela (33.38).

Moving beyond the national approach, we delve into the performance variations of Higher Education Institutions (HEIs) concerning SDGs over time. Notably, despite SDG 17 - Partnerships for the Goals (+16%), all SDGs exhibited negative performance in 2020 compared to 2019. The most substantial declines were observed in SDG 13 - Climate Action, SDG 12 - Responsible Consumption and Production, SDG 9 - Industry, Innovation, and Infrastructure, SDG 11 - Sustainable Cities and Communities, SDG 10 - Reduced Inequality, SDG 16 - Peace, Justice, and Strong Institutions, SDG 8 - Decent Work and Economic Growth, SDG 5 - Gender Equality, SDG 3 - Good Health and Well-being, and SDG 4 - Quality Education, whereas SDG 1 - No Poverty, SDG 2 - Zero Hunger, SDG 6 - Clean Water and Sanitation, SDG 7 - Affordable and Clean Energy, SDG 14 - Life Below Water, and SDG 15 - Life on Land showed no percentage variation from 2020 to 2019.

Subsequent years witnessed an improvement in SDG performance, notably in 2021, with significant increases observed in SDG 15 - Life on Land, SDG 10 - Reduced Inequality, and SDG 2 - Zero Hunger. Conversely, SDG 5 - Gender Equality and SDG 17 - Partnerships for the Goals experienced negative percentage variations. Further enhancements were observed in 2022 and 2023, with all SDGs demonstrating positive percentage variations compared to the previous year. Particularly noteworthy were the remarkable increases in SDG 14 - Life Below Water, SDG 15 - Life on Land, SDG 2 - Zero Hunger, SDG 12 - Responsible Consumption and Production, and SDG 6 - Clean Water and Sanitation, with SDG 14 - Life Below Water showcasing a substantial surge of 160% in 2023. These findings are graphically depicted in Figure 1, providing an overview of SDG percentage variations throughout the analyzed period.

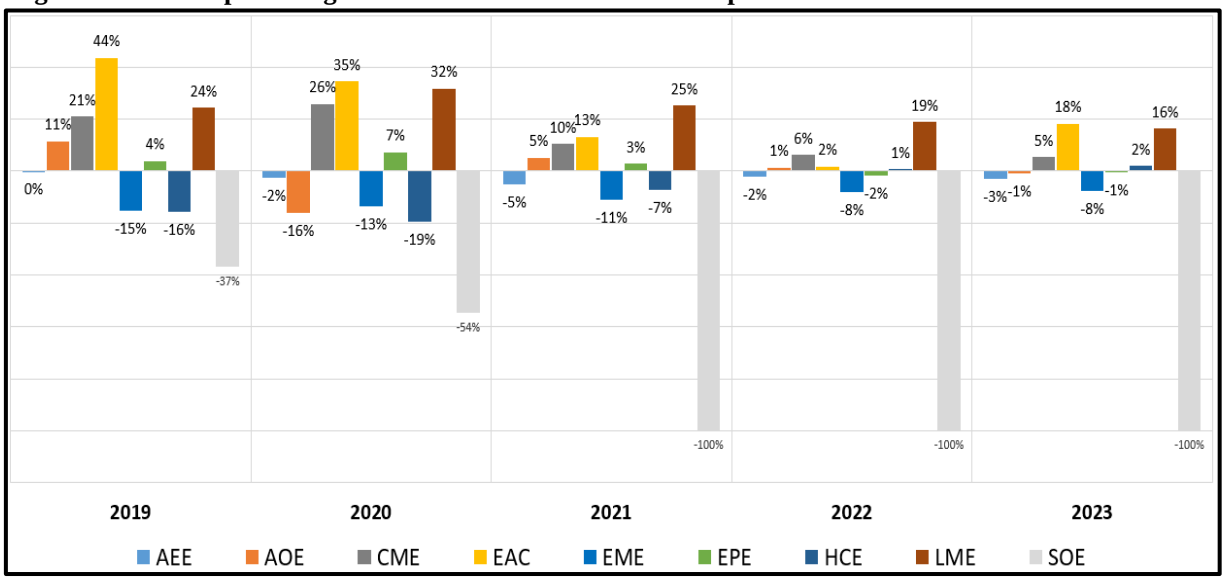
Figure 1 – Annual percentage change in SDGs performance



Source: The authors' work (2024).

Figure 2 displays the annual percentage contributions of various clusters to overall SDG performance from 2019 to 2023. Each cluster's contribution is depicted by color, showing fluctuating trends. The AEE cluster started at 0% in 2019 and declined to -3% by 2023. Similarly, the AOE cluster showed variability, with highs and lows, including -16% in 2020. In contrast, the CME cluster demonstrated a positive trend, increasing from 21% in 2019 to 25% in 2023. Conversely, the EME cluster consistently showed negative contributions, ranging from -8% to -15%. The EPE cluster varied, with positive and negative percentages, while the HCE cluster transitioned from negative to positive contributions over time. The LME cluster remained consistently positive, although its share decreased slightly from 24% to 16%. Lastly, the SOE cluster displayed predominantly negative percentages, dropping to -100% in later years, indicating minimal to no contribution to overall SDG performance.

Figure 2 – Annual percentage share of the cluster in total SDG performance



Source: The authors' work (2024).

Note: LME - Liberal Market Economies**, EAC** - Economic of Advanced Cities**, CME** - Coordinated Market Economies**, AOE** - Arab Oil-Based Economies**, EPE** - European Peripheral Economies**, AEE** - Advanced Emerging Economies**, HCE** – Highly Coordinated Economies**, EME** - Emerging Economies**, SOE** - Socialist Economies

6. Discussion

This section will analyze the phenomenon from a macro to a micro perspective. Initially, we will examine the trends in the sustainable performance of HEIs from 2019 to 2023. Subsequently, we will delve into the cluster analysis, examine the SDGs' outcomes, and conclude with a detailed review of the HEIs' specific approaches.

Regarding the period, the results have demonstrated the impact of the COVID-19 pandemic on the performance of HEIs' sustainable actions, which are measured in rankings and are aligned with Wang & Huang (2021). However, most institutions have fully recovered and even surpassed previous results. The year-over-year changes in the percentage of average clusters related to sustainable actions within HEIs from 2019 to 2023 reveal several significant trends in their sustainability efforts (Álvarez et al., 2022; Arnado, 2023). These efforts did not grow in 2019, as indicated by a 0% change. This stagnation could be attributed to HEIs focusing on other operational challenges or the initial impacts of the emerging global health crisis (Freire-González & Font Vivanco, 2020; Nerini et al., 2020).

The subsequent years show a recovery and growth in sustainable initiatives, coinciding with the challenges imposed by the COVID-19 pandemic. In 2020, a modest increase of 1% suggests that HEIs began to adapt and possibly redirect efforts towards sustainability as a response to the pandemic. This trend continued into 2021, which saw a more robust growth of 4%, indicating a significant rebound in sustainable initiatives. This was likely driven by increased global awareness of environmental and social issues during the pandemic, aligned with Olawale et al. (2022). The peak of this growth trajectory was in 2022, with an impressive 10% increase. This peak likely represents a culmination of intense recovery efforts, with HEIs returning to pre-pandemic levels of sustainable actions and intensifying these initiatives by leveraging pandemic-related lessons on resilience and sustainable practices (Olawale et al. (2022). However, by 2023, the growth rate had slowed to 2%, suggesting a marginal gain and potentially the beginning of a plateau in the expansion of these practices. This slowdown may reflect a normalization of sustainable initiatives concerning SDGs, becoming integrated into the HEIs' standard operational frameworks rather than areas of aggressive expansion (Kose & Ohnsorge, (2023). Overall, these trends demonstrate how HEIs have dynamically responded to the global challenges, not only recovering from the impacts of COVID-19 but also using the crisis as a catalyst to enhance their commitment to SDGs. Despite the robust growth in previous years, the marginal gain in 2023 highlights the necessity for continued innovation and commitment to prevent complacency and sustain momentum towards achieving global sustainability targets (Kose & Ohnsorge, (2023).

Related to the cluster analysis, the analysis has focused on the interplay between national institutional dimensions and the sustainable actions of HEIs toward SDGs. Overall, nations with strong economic freedom foster HEIs that excel in sustainable initiatives; as an example of LME – Liberal Market Economies countries (Australia, Canada, Ireland, New Zealand, United Kingdom, and the United States), which is aligned with previous research indicates that organizations situated in nations with higher levels of economic freedom tend to exhibit superior sustainable performance (Mitchell, 2013; Ersin, 2020; Benney, 2021). On the other hand, HEIs in Emerging Economies (Algeria, Argentina, Bangladesh, Brazil, China, Colombia, Egypt, India, Indonesia, Kazakhstan, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Peru, Philippines, Russian Federation, Thailand, Ukraine, and Vietnam) and Socialist Economies (Cuba and Venezuela), which often present inferior economic freedom qualities, face challenges caused by a lack of regulatory bodies and enforcement mechanisms. These observations reinforce the importance of the institutional context in shaping organizational behavior and reveal a considerable relationship between higher economic freedom and increased sustainable performance in HEIs. This finding is consistent with Jalloh (2015) and Ojeyinka and Osinubi (2022), who examined the relationship between stock market

capitalization and economic growth in African countries and supported the positive impact of economic freedom. Environments characterized by lower state intervention in the economy, exemplified by clusters like Liberal Market Economies (LME) and Economies of Advanced Cities (EAC), have been prominent regarding their HEIs sustainability rankings, in line with Benney's (2021) previous research. Economic freedom, associated with strong governance, curbs corruption and thus facilitates access to funding, a relationship that could be further explored in future studies.

In consonance with the idea of a more liberal market, government stability, state transparency, and competition among HEIs have been positively associated with their position in global sustainability rankings, fostering economic growth, job creation, and innovation. An example from the Economies of Advanced Cities (EAC) is Hong Kong, which reflects China's openness to create new businesses, particularly in high technology and infrastructure. These results are aligned with Coluccia et al. (2018), which found that governance, including government stability and practical law implementation favoring new business opportunities, plays a significant role in influencing the sustainable performance of HEIs in sustainable rankings. Moreover, Pinheiro et al. (2023) emphasize that governments can shape national characteristics to promote ethical behavior in HEIs, with better conditions fostering local competition, combating corruption, and indirectly encouraging corporate commitment to environmental issues through transparent governance environments. The results presented by LME – Liberal Market Economies and CME – Coordinated Market Economies countries underscore the importance of national governance, consistent with earlier studies (Mathur & Singh, 2013), which suggest that countries with higher government effectiveness and economic freedom empower investors to demand responsible behavior from firms through democratic mechanisms.

Concerning the SDGs, we analyzed the percentage variations of SDGs from 2021 to 2023. Notably, SDG 1 - No Poverty experienced a significant increase from 14% in 2021 to 81% in 2023, indicating a substantial improvement in efforts to eradicate poverty. Similarly, SDG 2 - Zero Hunger, witnessed a notable rise from 17% to 134% during the same period, reflecting enhanced initiatives to combat hunger and achieve food security. In contrast, SDG 3 - Good Health and Well-being, exhibited fluctuating trends, with a slight decrease of -2% in 2021, followed by increases of 9% and 29% in 2022 and 2023, respectively, signaling progress in promoting health and well-being despite initial setbacks. SDG 4 - Quality Education, focused on quality education and demonstrated steady growth, with incremental increases from 3% in 2021 to 28% in 2023, indicating educational outcomes and access advancements, in line with Leal Filho et al. (2019), who demonstrated a growing trend to SDGs mainly post COVID-19. Meanwhile, SDG 5 - Gender Equality, which addresses gender equality, experienced fluctuations, with a decline of -5% in 2021, followed by substantial increases of 19% and 55% in 2022 and 2023, respectively, suggesting efforts to bridge gender disparities. SDG 6 - Clean Water and Sanitation, displayed consistent improvement, with percentages rising from 6% in 2021 to 100% in 2023, underscoring advancements in water resource management and access to sanitation facilities.

All these SDGs are related to human development, education, health, and urban infrastructure. This indicates that a country's level of human development is positively correlated to its HEIs' sustainable ranking performances. Studies have observed that a well-educated population enhances civil society's capacity to monitor business activities, prompting HEIs to demonstrate a more significant commitment to the environment and various stakeholders (Roos & Guenther, 2020; Rauen et al., 2015; Souza et al., 2021). Prior research indicates that countries with well-developed educational systems and individuals with higher education levels tend to have a heightened awareness of SD and greater expectations regarding corporate social responsibility (Alejandro-Cruz et al., 2019). Consequently, in countries with a

higher Human Development Index (HDI), managers may have better access to education, influencing decision-making in favor of improved SD. It is relevant to highlight that SDG7, focusing on affordable and clean energy, exhibited positive trends, with percentages increasing from 12% in 2021 to 90% in 2023, indicating progress in promoting sustainable energy practices. In this scenario, we highlight the CME countries, especially the German case, in the energy transition matrix (Chovancová et al., 2022).

SDG 8 - Decent work and Economic growth experienced fluctuations, with percentages fluctuating from 9% to 68% over the three years, reflecting varied economic conditions and labor market dynamics. All AOE countries showed low scores related to SDG 8, which aligns with Taha et al.'s (2023) findings that emphasize the challenges in the Arab region, including those exacerbated by the COVID-19 outbreak, oil price volatility and structural economic issues. In contrast, liberal economies, such as LME and EAC, perform exceptionally well on SDG 8. This aligns with Hall and Soskice's (2001) emphasis on American employers seeking labor cooperation in developing a new and cooperative workforce. SDG 9 - Industry, innovation, and infrastructure displayed mixed trends. Its modest increase of 6% in 2021 was followed by a decrease of -2% in 2022 and a substantial increase to 73% in 2023, highlighting efforts to foster innovation and sustainable infrastructure development pushed by countries with great national governance. These findings support that HEIs demonstrate improved SDGs in countries with superior national governance. For instance, Finland's top position aligns with Sotarauta & Beer's (2017) findings, emphasizing the robust public sector and the decisive role of local government in fostering comprehensive opportunities for potential leaders and professionalizing leadership necessary to implement SDGs.

HEIs play a key role in sustainable development (SD) through education, research, and community engagement, extending their influence beyond traditional academic boundaries (Puertas & Marti, 2019). They align strategic priorities with the SDGs and are assessed through global sustainability rankings to improve practices (Leal Filho et al., 2019). However, the effectiveness of these rankings is debated due to methodological inconsistencies and challenges in comparing institutions across national contexts (Lauder et al., 2015; Galleli et al., 2021). Critics argue that standardized frameworks can homogenize sustainability practices, potentially undermining broader goals and that the relevance of sustainability issues varies from country to country, particularly affecting developing nations (Razak et al., 2013).

Criticism also addresses the impact of capitalism on the SDGs, with many attributing social inequality and environmental degradation to capitalist systems (McDonnell et al., 2020; Trabattoni, 2021). The Global North and South relationship, shaped by economic disparities and historical contexts, further complicates SD efforts (Barkemeyer, 2013; Campello, 2017; Rambaldi, 2022). Persistent gaps in technology transfer and knowledge equity, coupled with the Global North’s focus on environmental issues at the expense of the Global South’s economic and social challenges, are significant obstacles (Linnér, 2005; Yazdani, 2013). Insufficient funding, weak domestic institutions, and corruption in the Global South hamper progress toward achieving the SDGs, especially in low- and middle-income countries (Fuso Nerini et al., 2024). This highlights the need for more inclusive and context-sensitive approaches to global sustainability strategies, ensuring that the unique challenges and contributions of the Global South are integrated into SD efforts.

Sustainable performance in HEIs involves ethically achieving academic, environmental, social, and economic goals while addressing pressing societal challenges (Searcy, 2012). It goes beyond data collection and reporting to foster meaningful discussions on defining, implementing, and measuring sustainability practices (Lozano et al., 2015). HEIs must integrate sustainability into their core operations, strategies, and long-term visions to drive positive change and contribute to a more sustainable and responsible global society. They play a vital role in environmentally conscious practices, social inclusion, and long-term economic viability,

aligning with their educational purpose (Weissman, 2012; Littledyke et al., 2013; Puertas & Marti, 2019; Nielsen et al., 2020). Consequently, there is a need to broaden the evaluative focus in HEIs to incorporate these three dimensions of sustainable development beyond intellectual output.

Environmentally, HEIs are crucial in nurturing the next generation of leaders and advancing the technology required to realize climate reduction goals (Kerr & Hart-Steffes, 2012). Initiatives such as promoting "being green," organizing eco-friendly contests, and benchmarking recycling programs among participating HEIs showcase their commitment to SD. Additionally, HEIs engage in global campaigns, collaborating with young leaders to spearhead movements addressing the climate crisis, focusing on reducing carbon emissions (Kerr & Hart-Steffes, 2012). Socially, championing diversity, equity, and social justice fosters inclusive and supportive work and learning environments (Littledyke et al., 2013). Their engagement with communities promotes greater social cohesion and aims to enhance overall well-being and reduce environmental impact (Jackson, 2016). In this manner, HEIs play a pivotal role in shaping the development of future generations by actively contributing to societal advancement.

Economically, responsibly managing financial resources (Laasch et al., 2020) and fostering entrepreneurship and innovation aligned with sustainable development goals (Avrampou et al., 2019; Dahlmann et al., 2019). Studies emphasize the significance of such initiatives and explore how companies can contribute to financing sustainable development (Etzion et al., 2019; Schramade, 2017). Additionally, HEIs collaborate with other organizations to actively promote sustainable economic development, showcasing their integral role in advancing the economic aspects of SD (Leal Filho et al., 2019).

7. Conclusion

The contribution of HEIs to SD, considering their national institutional context, is that HEIs are instrumental in building a greater future by actively contributing toward SDGs (Leal Filho et al., 2019). HEIs contribute significantly to sustainable development (SD) by aligning educational programs, research, and community efforts with SDGs, driving societal change and innovation. They address challenges such as poverty, inequality, and climate change, impacting environmental conservation, social equity, and economic development. Their influence extends beyond academia, shaping a sustainable future through responsible leadership and resource utilization.

The findings are addressed to academics, HEI managers, public officials, and SD stakeholders. They offer insights into institutional SD challenges and guide future research. The paper highlights disparities in HEI performances across different economic clusters, enhancing understanding of sustainable practices within varied institutional contexts and contributing to SD education.

The study enriches SD education with structured data, examining HEI performance through global rankings and Varieties of Capitalism (VoC). It provides practical insights for HEIs and policymakers, challenges conventional "best university" notions, and aligns SDG rankings with social indicators. Limitations include a narrow focus on VoC dimensions, a single sustainability ranking, and top SDGs, suggesting a need for broader research approaches.

Future research should explore understudied regions like Latin America and Africa, integrating alternative frameworks such as Agency theory. Expanding the focus beyond VoC can reveal how HEIs achieve high sustainability rankings and identify key decision-makers. Additionally, analyzing institutional logic at organizational, national, and global levels will deepen understanding HEIs' sustainable actions toward SDGs.

References

Adiyoso, W. (2022). The Progress of the SDGs Research. The Journal of Indonesia Sustainable Development Planning.

Alejandro-Cruz, J. S., Rio-Belver, R. M., Almanza-Arjona, Y. C., & Rodriguez-Andara, A. (2019). Towards a science map on sustainability in higher education. Sustainability, 11(13), 3521.

Álvarez, V., Austin, M.C., Rodríguez, Z., Mora, D., & De León, L. (2022). Sustainability Actions towards Neutral Carbon Footprint Higher Education Institutions: A Systematic Review. 2022 8th International Engineering, Sciences and Technology Conference (IESTEC), 608-615.

Arnado, A. (2023). Mapping the Path to Sustainable Education: Critical Dimensions of Locally–Established Higher Education Institutions. International Journal of Membrane Science and Technology.

Atici, K. B., Yasayacak, G., Yildiz, Y., & Ulucan, A. (2021). Green University and academic performance: An empirical study on UI GreenMetric and World University Rankings. Journal of Cleaner Production, 291, 125289.

Baimenov, A., & Liverakos, P. (2019). Cooperation and Partnerships for International Development in the Era of the SDGs. Public Service Excellence in the 21st Century.

Baldini, M., Maso, L. D., Liberatore, G., Mazzi, F., & Terzani, S. (2018). Role of country-and firm-level determinants in environmental, social, and governance disclosure. Journal of Business Ethics, 150, 79-98.

Benney, T. M. (2021). Varieties of capitalism and renewable energy in emerging and developing economies. Journal of Economic Policy Reform, 24(4), 413-438.

Boiocchi, R.; Ragazzi, M.; Torretta, V.; Rada, E.C. (2023). Critical analysis of the Green Metric World University Ranking system: the issue of comparability. Sustainability, 15, 1343.

Brusca, I., Labrador, M., & Larran, M. (2018). The challenge of sustainability and integrated reporting at universities: A case study. Journal of Cleaner Production, 188, 347-354.

Caeiro, S., Leal Filho, W., Jabbour, C., & Azeiteiro, U. (2013). Sustainability assessment tools in higher education institutions: mapping trends and good practices around the world. Springer International Publishing.

Calabrese, A., Costa, R., Levialdi, N., & Menichini, T. (2019). Integrating sustainability into strategic decision-making: A fuzzy AHP method for the selection of relevant sustainability issues. Technological Forecasting and Social Change, 139, 155-168.

Casarejos, F., Frota, M. N., & Gustavson, L. M. (2017). Higher education institutions: a strategy towards sustainability. International Journal of Sustainability in Higher Education, 18(7), 995-1017.

Chovancová, J., & Vavrek, R. (2022). On the Road to Affordable and Clean Energy: Assessing the Progress of European Countries Toward Meeting SDG 7. Polish Journal of Environmental Studies.

Coluccia, D., Fontana, S., & Solimene, S. (2018). Does institutional context affect CSR disclosure? A study on Eurostoxx 50. Sustainability (Switzerland), 10(8).

De la Poza, E., Merello, P., Barberá, A., & Celani, A. (2021). Universities' reporting on SDGs: Using the impact rankings to model and measure their contribution to sustainability. Sustainability, 13(4), 2038.

Freire-González, J., & Font Vivanco, D. (2020). Pandemics and the Environmental Rebound Effect: Reflections from COVID-19. Environmental & Resource Economics, 1 - 4.

Fuso Nerini, F., Mazzucato, M., Rockström, J., van Asselt, H., Hall, J. W., Matos, S., ... & Sachs, J. (2024). Extending the Sustainable Development Goals to 2050—a road map. Nature, 630(8017), 555-558.

Gallego-Álvarez, I., & Quina-Custodio, I. A. (2017). Corporate Social Responsibility Reporting and Varieties of Capitalism: An International Analysis of State-Led and Liberal Market Economies. Corporate Social Responsibility and Sustainable Management, 24(6), 478–495. https://doi.org/10.1002/csr.1421

Galleli, B., Teles, N. E. B., dos Santos, J. A. R., Freitas-Martins, M. S., & Junior, F. H. (2021). Sustainability university rankings: a comparative analysis of UI green metric and the times higher education world university rankings. International Journal of Sustainability in Higher Education.

Garcia-Sanchez, I. M., Cuadrado-Ballesteros, B., & Frias-Aceituno, J. V. (2016). Impact of the Institutional Macro Context on the Voluntary Disclosure of CSR Information. Long Range Planning, 49(1), 15–35. https://doi.org/10.1016/j.lrp.2015.02.004

Hair Jr, J., Page, M., & Brunsveld, N. (2019). Essentials of business research methods. Routledge.

Hall, P., & Soskice, D. (2001). An introduction to varieties of capitalism. In P. Hall and D. Soskice (Eds), Varieties of capitalism: The institutional foundations of comparative advantage: 1–70. Oxford: Oxford University Press.

International Labor Organization, (2022). Report: Productivity growth, structural transformation and diversification in the Arab States, Beirut, 2022. Accessed in December 2023.

Ioannou, I., & Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. Journal of international business studies, 43, 834-864.

Jackson, G., & Deeg, R. (2008). Comparing capitalisms: Understanding institutional diversity and its implications for international business. Journal of International Business Studies, 39(4), 540–561. https://doi.org/10.1057/palgrave.jibs.8400375

Jensen, J. C., & Berg, N. (2012). Determinants of traditional sustainability reporting versus integrated reporting. An institutionalist approach. Business Strategy and the Environment, 21(5), 299-316.

Jeremić, V., & Sachs, J. D. (2014). The United Nations in the age of sustainable development. The Economic and social review, 45(2, Summer), 161-188.

Kerr, K. G., & Hart-Steffes, J. S. (2012). Sustainability, student affairs, and students. New Directions for Student Services, 2012(137), 7-17.

King, R. (2009). Governing universities globally: organizations, regulation and rankings. Cheltenham, UK; Northampton, MA: Edward Elgar, 2009.

King, R. (2010). Policy internationalization, national variety and governance: global models and network power in higher education states. Higher Education, 60, 583-594.

Kose, M.A., & Ohnsorge, F.L. (2023). Slowing Growth: More Than a Rough Patch. SSRN Electronic Journal.

Laasch, O., Suddaby, R., Freeman, R. E., & Jamali, D. (2020). Mapping the emerging field of responsible management: domains, spheres, themes, and future research. Research handbook of responsible management, 2-39.

Lauder, A., Sari, R.F., Suwartha, N. and Tjahjono, G. (2015), "Critical review of a global campus sustainability ranking: Greenmetric", Journal of Cleaner Production, Vol. 108, pp. 852-863.

Leal Filho, W. (2011), "About the role of universities and their contribution to sustainable development", Higher Education Policy, Vol. 24 No. 4, pp. 427-438.

Leal Filho, W., Shiel, C., Paço, A., Mifsud, M., Ávila, L. V., Brandli, L. L., ... & Caeiro, S. (2019). Sustainable Development Goals and sustainability teaching at universities: Falling behind or getting ahead of the pack? Journal of Cleaner Production, 232, 285-294.

Leal Filho, W., Vargas, V.R., Salvia, A.L., Brandli, L.L., Pallant, E., Kļaviņš, M., Ray, S., Moggi, S., Maruna, M., Conticelli, E., Ayanore, M.A., Radović, V., Gupta, B., Sen, S.K., Paço, A.D., Michalopoulou, E., Saikim, F.H., Koh, H.L., Frankenberger, F., Kanchanamukda, W., Cunha, D.A., Akib, N.A., Clarke, A., Wall, T., & Vaccari, M. (2019). The role of higher education institutions in sustainability initiatives at the local level. Journal of Cleaner Production.

Littledyke, M., Manolas, E., & Littledyke, R. A. (2013). A systems approach to education for sustainability in higher education. International Journal of Sustainability in Higher Education, 14(4), 367-383.

Lozano, R., Lukman, R., Lozano, F.J., Huisingh, D. and Lambrechts, W. (2013), "Declarations for sustainability in higher education: becoming better leaders, through addressing the university system", Journal of Cleaner Production, Vol. 48, pp. 10-19.

Mathur, A., & Singh, K. (2013). Foreign direct investment, corruption and democracy. Applied Economics, 45(8), 991-1002.

Mbah, R. E., & Wasum, D. F. (2022). Russian-Ukraine 2022 War: A review of the economic impact of Russian-Ukraine crisis on the USA, UK, Canada, and Europe. Advances in Social Sciences Research Journal, 9(3), 144-153.

McDonnell, J. E., Abelvik-Lawson, H., & Short, D. (2020). A paradox of 'sustainable development': A critique of the ecological order of capitalism. In The Emerald Handbook of Crime, Justice and Sustainable Development (pp. 439-463). Emerald Publishing Limited.

Nelson, R.R. (2011). The Complex Economic Organization of Capitalist Economies. Capitalism and Society, 6.

Nerini, F.F., Henrysson, M., Swain, A., & Swain, R.B. (2020). Sustainable Development in the Wake of Covid-19.

Nhamo, G., & Mjimba, V. (2020). The context: SDGs and institutions of higher education. Sustainable development goals and institutions of higher education, 1-13.

Nielsen, J. E., Stojanović-Aleksić, V., & Bošković, A. (2020). Promoting Entrepreneurship in HEIs: Leading and Facilitating University Spin-Off Ventures. In Handbook of Research on Enhancing Innovation in Higher Education Institutions (pp. 216-238). IGI Global.

Ojeyinka, T. A., & Osinubi, T. T. (2022). The moderating role of financial development in the globalization-sustainable development nexus in some selected African Countries. Economic Change and Restructuring, 1-30.

Olawale, B.E., Mncube, V., Ndondo, S., & Mutongoza, B.H. (2022). Building a sustainable and democratic future in rural South African higher education institutions. Perspectives in Education.

Ortas, E., Gallego-Álvarez, I., & Alvarez, I. (2019). National institutions, stakeholder engagement, and firms' sustainable, social, and governance performance. Corporate Social Responsibility and Sustainable Management, 26(3), 598-611.

Pinheiro, A.B., Oliveira, M.C. and Lozano, M.B. (2023), "When in Rome, do as the Romans do: the effect of characteristics of capitalism on sustainable performance", International Journal of Productivity and Performance Management, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/IJPPM-04-2023-0193

Puertas, R., & Marti, L. (2019). Sustainability in universities: DEA-Greenmetric. Sustainability, 11(14), 3766.

Rauen, T. R., Lezana, Á. G. R., & da Silva, V. (2015). Environmental management: an overview in higher education institutions. Procedia Manufacturing, 3, 3682-3688.

Roos, N., & Guenther, E. (2020). Sustainability management control systems in higher education institutions from measurement to management. International Journal of Sustainability in Higher Education, 21(1), 144-160.

Saric, J., Breu, T., Fokou, G., Gass, S. J., Kiteme, B., Masanja, H., ... & Käser, F. (2023). Research− implementation organisations and their role for sustainable development. Sustainable development, 31(3), 1401-1416.

Searcy, C. (2012). Corporate sustainability performance measurement systems: A review and research agenda. Journal of business ethics, 107, 239-253.

Shi, L., Han, L., Yang, F., & Gao, L. (2019). The evolution of sustainable development theory: Types, goals, and research prospects. Sustainability, 11(24), 7158.

Swain, R. B. (2018). A critical analysis of the sustainable development goals. Handbook of sustainability science and research, 341-355.

Taha, A., Aydin, M., Lasisi, T. T., Bekun, F. V., & Sethi, N. (2023). Toward a sustainable growth path in Arab economies: an extension of classical growth model. Financial Innovation, 9(1), 1-24.

THE World University Rankings (2022), "The University -IRs 2022: methodology", London, available at: https://the-impact-report.s3.eu-west-1.amazonaws.com/Impact+2022/THE.ImpactRankings.METHODOLOGY.2022_v1.3.pdf (accessed 16 May 2023).

Tilbury, D. (2011), "Higher education for sustainability: A global overview of commitment and progress", Higher education in the world, 4, pp. 18-28.

Trabattoni, A. (2021). Sustainable Entrepreneurship: Definition and Types. In Industry, Innovation and Infrastructure (pp. 1060-1071). Cham: Springer International Publishing.

Unesco. (2020). Education for sustainable development: A roadmap. UNESCO publishing: Paris, France.

Vandemoortele, J. (2017). From MDGs to SDGs: critical reflections on global targets and their measurement. Sustainable Development Goals and income inequality, 32-50.

Veidemane, A. (2022). Education for sustainable development in higher education rankings: Challenges and opportunities for developing internationally comparable indicators. Sustainability, 14(9), 5102.

Wan, W. P., & Hoskisson, R. E. (2003). Home country environments, corporate diversification strategies, and firm performance. Academy of Management journal, 46(1), 27-45.

Wang, Q., & Huang, R. (2021). The impact of COVID-19 pandemic on sustainable development goals – A survey. Environmental Research, 202, 111637 - 111637.

Witt, M. A., & Jackson, G. (2016). Varieties of capitalism and institutional comparative advantage: A test and reinterpretation. Journal of International Business Studies, 47(7), 778-806.

Witt, M. A., de Castro, L. R. K., Amaeshi, K., Mahroum, S., Bohle, D., & Saez, L. (2018). Mapping the business systems of 61 major economies: A taxonomy and implications for varieties of capitalism and business systems research. Socio-Economic Review, 16(1), 5–38. https://doi.org/10.1093/ser/mwx012

World Bank (2023), Gross domestic product (GDP) (indicator). https://data.worldbank.org/indicator/NY.GDP.MKTP.CD World Bank national accounts data, and OECD National Accounts data files. (Accessed on 09 April 2023)

Žalėnienė, I., & Pereira, P. (2021). Higher education for sustainability: A global perspective. Geography and Sustainability, 2(2), 99-106.