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Inclusive Institutions and Sustainable Development: Applying Acemoglu and Robinson's Framework to the Global South

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Abstract: Sustainable development in the Global South faces a complex challenge, influenced by environmental, economic, and social factors, as well as issues like poor governance, political instability, and inequality. The literature emphasizes that institutions are crucial in shaping incentives and behaviors that drive development. Inclusive institutions foster sustainability by providing equitable opportunities, safeguarding property rights, and encouraging innovation, whereas extractive institutions—marked by unequal systems and a lack of basic liberties—hinder progress. This research examines how economic and political institutions affect sustainable development in 94 developing countries from 1990 to 2019. Sustainable development, defined as the ecological efficiency of human development, is measured using the Sustainable Development Index (SDI) introduced by Hickel (2020). Economic institutions are measured using two indicators: economic freedom and de jure economic globalization, while political institutions are evaluated via de jure political globalization, judicial independence, democracy, and civil liberties. The empirical analysis shows that all indicators of inclusive institutions positively influence sustainable development in the Global South. Moreover, democracy proved to be the most effective in promoting sustainability, while the effect of de jure political globalization was the weakest in terms of magnitude (though still statistically significant). These findings underscore the vital role of inclusive institutions in achieving sustainability, highlighting their capacity to balance development goals with environmental considerations. This study demonstrates that democracy enhances sustainable development more than economic liberalization in the Global South, challenging conventional policy priorities.

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Inclusive Institutions and Sustainable Development: Applying Acemoglu and Robinson's Framework to the Global South

1. Introduction

The pursuit of sustainable development in the Global South, defined as low- and middle-income countries across Africa, Asia, and Latin America (Dados & Connell, 2012), has become a vital challenge in the 21st century. This challenge is complex, involving not only environmental issues but also economic and social factors that influence development. It is further worsened by several factors mostly unique to the developing world, such as weak law enforcement, political instability, poor governance, high poverty and inequality levels, and limited institutional capacity (Hrysenko et al., 2022; Kaimuri & Kosimbei, 2017; Koirala & Pradhan, 2020; Zamani & Tayebi, 2020). Achieving sustainability in this setting requires not only better environmental governance but also institutional reforms that address the core challenges of sustainable development.

The connection between institutions and economic development has been thoroughly examined. Institutions, defined as the "rules of the game" in a society, can significantly influence the incentives and restrictions that guide individual and collective actions (Acemoglu, Johnson, & Robinson, 2004). Inclusive institutions can both limit unsustainable behaviors and promote opportunities for environmental activism, fostering innovation and improving productive capacities. This suggests that institutions can be a key factor in a country's development across economic, social, and environmental areas. Strong and inclusive institutions can create a setting conducive to sustainable growth, while extractive institutions may result in less favorable outcomes. Acemoglu and Robinson (2012) state that institutions are the main force driving national progress. Specifically, economic and political institutions can play a vital role in producing positive development results if they are inclusive, whereas extractive institutions tend to have the opposite effect.

Economic institutions represent the rules that govern economic transactions and interactions. Protection of property rights, an unbiased legal system, and an equitable opportunity structure form inclusive economic institutions. Conversely, extractive economic institutions consist

of insecure or absent property rights, an unfair legal system, and biased opportunities (Acemoglu & Robinson, 2012). Naturally, inclusive economic institutions, characterized by economic freedom and a global economic outlook, tend to have positive effects on development, while extractive economic institutions often lead to negative development outcomes (Bennett, et al., 2017).

Political institutions, on the other hand, determine the distribution of power and the parameters within which power is exercised in society. If power is concentrated among a small group of self-interested individuals, such a political setup would enable the extraction and appropriation of resources from the masses, hence being called extractive political institutions (Acemoglu & Robinson, 2012). Extractive political institutions typically include autocratic systems, hostile international relations, and suppression of civil liberties. These institutions not only hinder a decent working environment but also reduce productivity and innovation, leading to poor development outcomes. Conversely, at the other end of the spectrum are inclusive political institutions. These encompass democratic governance, friendly foreign relations, judicial independence ensuring civil liberties, and a framework that enables opportunity. Such institutions foster high levels of innovation and productive activity (BenYishay & Betancourt, 2010; Boettke & Candela, 2017; Wang et al., 2021).

The influence of economic and political institutions on climate change and the environment remains relatively underexplored. This does not mean that environmental sustainability has not been examined within its institutional context, but existing research often emphasizes institutional quality without specifically addressing economic and political institutions. Even fewer studies investigate sustainable development within their institutional frameworks. Most current work focuses either on the broad concept of institutional quality or on environmental governance alone, without integrating wider development aspects. Additionally, the Global South faces challenges from extractive institutions, yet there is limited systematic empirical support to guide necessary institutional reforms for sustainable development. As climate awareness and understanding grow globally, it becomes essential to study development outcomes with regard to environmental sustainability. Therefore, understanding how economic and political institutions influence sustainability can provide valuable insights into shaping development in developing countries. Institutional barriers to sustainable progress are often more severe in these nations due to shortages of physical, financial, and human resources vital for effective reforms. Consequently, this study

advocates for prioritizing inclusive economic and political institutions as key drivers of sustainable development in the Global South, which includes developing nations in Africa, Asia, and South America.

Keeping this in mind, our research aims to investigate the impact of economic and political institutions on sustainable development in the Global South to emphasize the need for institutional reforms in both spheres. The empirical analysis uses panel data from 94 developing countries in the Global South for the period from 1990 to 2019. We utilize economic freedom and de jure economic globalization as indicators of economic institutions, while democracy, civil liberties, judicial independence, and de jure political globalization serve as indicators of political institutions. Lower values of these indicators signify extractive institutions, while higher values indicate inclusive economic and political institutions. Sustainable development is defined as the ecological efficiency of human development and is measured through the Sustainable Development Index (SDI) (Hickel, 2020). It assesses how much human development can be achieved without causing environmental degradation. Using the system GMM technique, our findings highlight the importance of inclusive institutions in promoting sustainable development and analyze the relative significance of economic and political institutions based on their outcomes. Among political institutions, democracy plays a leading role in determining sustainable development levels, whereas among economic institutions, economic freedom is more effective than economic globalization. Overall, these findings suggest that inclusive economic and political institutions create the supportive environment necessary for sustainable development.

The study is organized as follows: Section 2 reviews literature on institutions and sustainability; Section 3 details data and methodology; Section 4 presents results of both descriptive and inferential statistics; Section 5 discusses policy implications.

2. Literature Review

The literature on the efficacy and effectiveness of institutions in relation to the development of nations has been a subject of discussion before North, Acemoglu, and Robinson brought it into mainstream development discourse. Rostow (1959) elaborated on the importance of institutions in creating an enabling environment for growth and prosperity within the stages of growth framework. However, North (1990) was the first to analyze the phenomenon that development primarily depends on a

country's institutional framework. He highlighted the importance of property rights and transaction costs as the most enabling institutional frameworks for development by incorporating the Coase theorem. North (1990) argued that with efficient property rights and zero transaction costs, the right incentives are created for individuals to have a stake in national development. Acemoglu et al. (2001) drew from the historical experiences of formerly colonized developing nations to explain the divergence in development between countries. Cases where colonial powers established extractive institutions are likely to result in adverse development outcomes, whereas regions with inclusive institutions, including property rights and participatory systems, tend to achieve higher levels of development.

In their seminal work, Acemoglu et al. (2012) elaborate on the relationship between institutions and development by distinguishing between economic and political institutions. Inclusive economic institutions include secure private property rights and more equal opportunities, allowing for greater individual autonomy in resource allocation and expanding access to opportunities for progress. Inclusive political institutions, such as the protection of liberties and democratic norms, foster an environment that supports development by prioritizing the interests of the masses over those of corporations (BenYishay & Betancourt, 2010; Boettke & Candela, 2017; Wang et al., 2021). Kılıçarslan & Dumrul (2018) analyzed the impact of globalization on economic growth in Turkey by focusing on the period from 1980 to 2015. Their findings reveal that Turkish economic growth appears to decline due to economic and political globalization, supporting the idea that more liberal economic and political institutions may benefit the economy. Santiago, Fuinhas, & Marques (2020) added an institutional perspective by exploring the relationship between globalization, economic freedom, and economic growth in Latin America and the Caribbean from 1995 to 2015. The study concluded that globalization positively influences countries' economic growth and enhances their long-term social well-being. Conversely, this growth-globalization relationship was insignificant when considering the political dimension of globalization. Xu et al. (2021) found a positive relationship between globalization and GDP growth based on data from 45 Asian economies from 2003 to 2017. According to the authors, combating corruption and improving governance are crucial for the development of Asian countries amidst globalization.

Vollmer and Ziegler (2009) provide a theoretical explanation of why democracies, compared to autocratic political systems, might

outperform them in providing public goods and, therefore, improve human development. They also empirically test these theoretical expectations for the period 1970-2003 across 150 countries. Their work shows that living under democratic rule is linked to better human development. Nikolaev (2014) examined the relationship between economic freedom and human development across 88 countries. The researcher used conditional quantile regression to understand how human development at different levels is influenced by economic freedom. The results reveal varied effects across HDI quantiles and show an increasing impact at lower levels of human development. This suggests that countries with low human development are likely to see improved health outcomes when economic freedom increases. Balcerzak & Pietrzak (2017) investigated the connection between institutional quality and human development in 24 EU member states from 2004 to 2010. The researchers found strong effects of high-quality institutions on entrepreneurship, transaction costs, labor markets, and financial institutions, which in turn boost productivity. Ali, Jehan, and Sherbaz (2022) argued that high-quality institutions promote human development through their positive influence on education, health, and living standards in a sample of 65 developing countries. The study emphasizes that inclusive institutions are vital for advancing human development and can play a key role in fostering sustainability.

Connecting institutional theory to environmental sustainability, Mol & Sonnenfeld (2000) argue that state institutions that promote environmentally responsible innovations and the sustainable use of natural resources in such technologies can lead to better sustainable development outcomes. The Ecological Modernization Theory (EMT) associates supportive state institutions with economic growth and sustainability, asserting that the state's support of increased economic freedom facilitates the adoption of sustainable technologies. A key aspect of the link between institutions and sustainable development is how institutions enable economic and political international connectivity, which influences human development and environmental quality.

On the empirical side, the challenge of achieving sustainable development may be most sharply faced by African nations. Ebohon (1996) elaborate on institutional deficiencies and capacity-building constraints as the main obstacles to sustainable development in Africa. The study argues that active participation of Africa in the global economy can provide vital transfers of technology and skills, highlighting the importance of openness for sustainable development. However, the study lacks analysis of political

institutions. Sachikonye (2002) examined the role of inclusive political institutions like democracy in sustainable development and poverty alleviation in Africa. The author suggests improving state capacity by implementing a model that includes civil society groups in the transition toward sustainability and democracy. Veeman & Politylo (2003) emphasized the impact of property rights on economic growth, income distribution, and environmental sustainability, underscoring the importance of economic institutions. Additionally, the authors stressed the need for global and decentralized institutions to address environmental issues, demonstrating the effectiveness of globalization for sustainable development. Weimin et al. (2021) proposed a framework showing that carbon emissions are influenced by globalization processes. Amegavi et al. (2022) explored the connection between economic globalization, institutional quality, and ecological footprint in Ghana from 1984 to 2016. The findings revealed that globalization short-term worsens the environment's quality. Furthermore, the influence of institutional quality also enlarges the ecological footprint. Thus, institutional quality must be considered in environmental conservation and sustainability, along with economic globalization, particularly in Ghana. The study highlights the potential for institutions to significantly impact both growth and sustainability. Ahmed et al. (2022) also emphasized the link between institutional quality and sustainable economic growth in South Asia. Zhang et al. (2023) noted that globalization and deliberative democracy influence sustainable development in South Asia. The study concludes that for the region to achieve sustainable development goals, there must be a focus on both democracy and globalization.

Roy and Tisdell (1998) examined the role of good governance in sustainable development in India and emphasized the importance of decentralizing state institutions and property rights to promote sustainability. Aidt (2010) analyzed the relationship between corruption and sustainable development across 110 countries from 1996 to 2007. The empirical results consistently indicated that corruption diminishes growth in real wealth per capita. Mukherjee and Chakraborty (2013) investigated how socioeconomic and political factors influence environmental sustainability in various countries, analyzing a database of 146 nations. The findings reveal that human development, political transparency, economic growth, and low levels of corruption contribute to greater environmental sustainability. Additionally, economic freedom tends to hinder long-term economic growth. Akalin and Erdogan (2021) studied the connection between democracy and environmental degradation from 1990 to 2015 in 26 OECD member countries. Their findings suggest that democracy

negatively impacts environmental quality, indicating that democracy alone may not be sufficient to solve ecological problems in OECD countries. Ahmed et al. (2022) examined how environmental regulation and democracy influence sustainable development and ecological health in G7 nations, demonstrating their positive effects on ecological sustainability through reductions in environmental footprints.

The literature emphasizes the importance of inclusive economic and political institutions in promoting sustainable development. The evidence for developing countries is compelling, as many studies focus exclusively on various indicators of economic and political institutions. However, few studies address this issue within the context of social progress and sustainability, meaning improving human development outcomes without harming the environment. The existing literature does not evaluate the comparative effectiveness of economic and political institutions in fostering sustainable development, particularly in the context of the Global South. Given the significant challenges faced by the Global South, it is crucial to assess the impact of different economic and political institutions on sustainable development in the region, which we will explore in the following sections of the study.

3. Methodology and Data

By adapting the rationale of Acemoglu and Robinson (2012), the econometric model of the present study is formulated as follows:

$$SDI_{it} = \alpha_1 + \alpha_2 SDI_{it-1} + \alpha_3 EI_{it} + \alpha_4 LCPI_{it} + \alpha_5 LFD_{it} + \alpha_6 URB_{it} + \alpha_7 REC_{it} + \mu_{it} \quad (1)$$

$$SDI_{it} = \beta_1 + \beta_2 SDI_{it-1} + \beta_3 PI_{it} + \beta_4 LCPI_{it} + \beta_5 LFD_{it} + \beta_6 URB_{it} + \beta_7 REC_{it} + \mu_{it} \quad (2)$$

where SDI_{it} represents the Sustainable Development Index (SDI), measured as the ecological efficiency of human development, recognizing that development must occur within planetary boundaries. It is calculated as the ratio of two figures: a 'development index' based on the Human Development Index, calculated as the geometric mean of the life expectancy index, the education index, and a modified income index; and an 'ecological impact index' calculated as the extent to which consumption-based CO2 emissions and material footprint exceed per-capita shares of planetary boundaries (Hickel, 2020).

EI is a vector of economic institutions consisting of two indicators: (a) EF_{it} = Economic Freedom, which is defined as the ability to make economic decisions free from government interference, measured by indices. It evaluates 12 aspects grouped into four categories, namely rule of law, government size, regulatory efficiency, and open markets. Each category is scored on a scale from 0 to 100. The overall value of EF is then calculated by taking the arithmetic average of all categories (Heritage Foundation, 2021). (b) EG_{it} = De Jure Economic Globalization, which is defined as the formal integration of countries into the global economy through policies, treaties, and agreements, covering trade, investment, and financial regulations. It is measured by the De Jure Economic Globalization Index, which indicates the extent to which a country's laws and regulations are integrated with the global system. Equation 1 is estimated by taking each measure of EI separately.

PI represents the vector of political institutions, consisting of four types of indicators: (a) DPG_{it}= De Jure Political Globalization, defined as the formal integration of countries into global political systems through participation in international organizations, treaties, and agreements, promoting political cooperation and governance; (b) DEM_{it}= Democracy, defined as a system of government where power is vested in the people, characterized by free and fair elections, political participation, civil liberties, and the rule of law; (c) CL_{it}= Civil Liberties, measured by the degree of individual freedoms such as speech, assembly, and the press, often quantified by indices like those from Freedom House; (d) JI_{it}= Judicial Independence, measured by the extent to which the judiciary is free from external influences, assessed using indices from sources like the World Economic Forum. Equation 2 is estimated by taking each measure of PI separately.

Other control variables include $LCPI_{it}$, which is the log of the Consumer Price Index; LFD_{it}, measured as the log of domestic credit to the private sector by banks; URB_{it}, representing urbanization as the percentage of the urban population of the total population; and REC_{it}, indicating renewable energy consumption as a percentage of total final energy consumption[1].

[1] Table A1 provides details on the variable construction and transformation.

3.1. Data Sources and Data Transformation

The empirical analysis uses panel data from 94 developing countries in the global south, defined as low- and middle-income countries across Africa, Asia, and Latin America, covering the period from 1990 to 2019. The study employs unbalanced panel data due to data availability on the relevant variables. Notably, countries with less than 10 years of data are excluded from the sample. Most variables are sourced from the World Development Indicators (WDI) by the World Bank (2023). Data on the Sustainable Development Index (SDI) is obtained from the UN Sustainable Development Group, specifically from the UNDP and the World Bank. The economic freedom index is retrieved from the Economic Freedom of the World (2023) database. The KOF Globalization Index (2023) is used to get data on de jure economic and political globalization scores. Civil liberties and judicial independence data come from the Global State of Democracy Indices Version 7 (gsod_indices-v7, 2023). Data on democracy are acquired from the Polity V dataset.

3.2. Estimation Technique

The study's empirical framework relies on a dynamic econometric model that uses the lagged dependent variable as an important regressor. Both econometric models in the study face potential endogeneity from multiple sources. First, including the lagged dependent variable introduces dynamic panel bias because it is likely correlated with unobserved country-specific effects in the error term, violating the assumption of strict exogeneity. Second, endogeneity may also come from simultaneity or reverse causality among different regressors and dependent variables, such as institutions—both economic and political—which can influence sustainable development and be influenced by it. Countries with higher SDI levels might be more likely to adopt better institutions. Finally, omitted variable bias could result from unobserved factors like cultural, historical, or geopolitical influences that affect both institutions and sustainable development, causing spurious correlations if not properly controlled. These sources of endogeneity require advanced estimation techniques like System GMM, which can address biases through the use of instruments and dynamic specifications. Furthermore, in samples where N>T, GMM tends to be more efficient compared to other panel data techniques. Additionally, the GMM method provides diagnostic tests, such as J-statistics and autocorrelation tests, to assess the validity of the instruments.

4. Results and Discussions

4.1. Descriptive Statistics

This section summarizes the key variables related to sustainable development with their respective statistics. Through analysis, readers can gain insights into how these variables are distributed and how they show central tendency or variability.

Table 1. Descriptive Statistics

Variables	Obs	Mean	S.D	Min.	Max.
SDI	2756	0.58	0.16	0.08	0.85
Economic Freedom (EF)	2246	6.06	1.13	1.87	8.87
De Jure Economic Globalization (DEG)	2729	44.86	15.51	12.00	91.00
De Jure Political Globalization (DPG)	2789	60.33	18.66	7.00	94.00
Democracy (DEM)	2341	4.02	3.60	0.00	10.00
Civil Liberties (CL)	2669	0.55	0.18	0.11	0.93
Judicial Independence (JI)	2669	0.47	0.16	0.09	0.89
Natural Log of CPI (LCPI)	2582	4.12	1.53	-21.61	6.31
Natural Log of Private Credit as percentage of GDP (LFD)	2697	3.06	1.15	-6.47	5.12
Urbanization (URB)	2846	48.73	23.03	5.42	100.00
Renewable Energy Consumption (REC)	2844	43.37	31.55	0.00	98.30

Source: Authors' calculations.

The average SDI value is 0.58, indicating a moderate level of sustainable development among the selected group of countries in the global south. However, there is significant variation in SDI scores, with a minimum of 0.08 and a maximum of 0.85. This shows that some countries in the global south have achieved high SDI levels, while others remain at the lower end of the scale. Although the global south includes all developing countries, some have outperformed others by reaching higher SDI levels, while some still perform poorly. Economic institutions indicate that these countries generally perform above average in terms of economic freedom, with some adopting highly liberal economic systems and others maintaining more restrictive ones. The de jure economic globalization score is below the average, with a mean value of 44.86, suggesting that

while some countries embrace globalization effectively, others remain isolated. Overall, the region displays lower levels of global integration.

Moving to political institutions, the average value of four indicators shows that de jure political globalization is above average, while for the other indicators, the performance remains below average. Notably, the average value indicates that in terms of political globalization, these countries perform slightly above average, whereas for civil liberties, the performance barely exceeds the average score. In contrast, for judicial independence and democracy, the performance is clearly below the average index score.

Among other variables, the average inflation rate indicates a moderate level of inflation across the sample countries, with some countries experiencing higher-than-average rates and others facing very low inflation levels. Regarding financial development, the region's overall performance is quite poor, as shown by the average LFD value of 3.06. For urbanization, the large variation suggests that countries are at different stages of demographic and spatial development. In terms of renewable energy consumption, the region's average score is relatively low. However, some countries have outperformed others in renewable energy, reaching a maximum score of 100, while others still rely heavily on fossil fuels.

4.2. Empirical Findings

4.2.1. Economic Institutions and Sustainable Development

We begin the discussion with economic institutions measured through economic freedom and de jure economic globalization. For both models, the average value of sustainable development, while holding all other variables constant, appears negative (-0.231; -0.016), indicating that during the selected time period, the average SDI performance is negative in the global south.

The coefficient on lagged SDI indicates the level of persistence in sustainable development over time. It shows how much of the previous period's SDI influences the current period. The lagged SDI value is positive and statistically significant in both models. Coefficient values closer to 1 suggest high persistence in the SDI. This result aligns with the idea of path dependence in progress, where past policies and established frameworks significantly impact long-term development outcomes.

The coefficients for both measures of economic institutions are positive and statistically significant, indicating that better economic institutions enhance sustainable development. Economic freedom creates an environment favorable to economic growth, which is crucial for improving human development indicators such as income, health, and education (Gwartney et al., 2021). Furthermore, economic freedom promotes entrepreneurial activity and investment in green technologies, helping to mitigate environmental impacts and reduce ecological footprints (Elliott & Clement, 2014). This relationship highlights the importance of economic policies that support freedom and innovation to achieve broader sustainability objectives. The findings align with Ecological Modernization Theory as well as the work of Acemoglu and Robinson (2012).

De jure economic globalization promotes growth through increased trade, investment, and technology transfer, which are essential for sustainable development (Dreher, 2006). It also helps enhance market integration and efficient resource allocation, leading to better economic performance (Jorda & Taylor, 2016). Additionally, Balsalobre-Lorente et al. (2023) argued that countries with strong environmental regulations and policies tend to benefit more from globalization in terms of sustainability. This aligns with the findings of Xu et al. (2021), who explained that countries with solid institutional and governance structures are better equipped to adopt growth processes driven by globalization while also managing the challenges associated with it. Ke et al. (2020) further explained that incorporating environmental considerations into globalization strategies can help lower ecological footprints and support sustainable development.

Notably, economic freedom and de jure economic globalization represent modern institutional frameworks that enable greater autonomy in resource allocation and increased accountability for environmentally irresponsible behavior, leading to improved sustainable development outcomes (Mol, 2010). These institutions also promote a higher level of inclusivity by providing freer access to domestic and international markets, enhancing opportunities for the masses to both progress economically and adopt sustainable technologies for consumption and production. These factors are essential for achieving both economic growth and ecological sustainability. Therefore, economic institutions are vital for sustainable development because they shape the incentives and constraints within which economic agents operate, influencing economic performance through transaction costs, property rights, and contract enforcement (North, 1990).

From a development economics perspective, good institutions are crucial for higher levels of economic development, as they offer a stable framework for economic activities (Acemoglu & Robinson, 2012).

Panel B of the table shows diagnostic tests. As we know, the reliability and soundness of results from the system GMM estimation depend on the validity of the instruments. Therefore, Panel B reports the diagnostic tests, specifically J-statistics and AR(1), AR(2). The J-statistics confirm that the instruments used in the estimations are not correlated with the residuals and do not suffer from overidentification problems. Moreover, AR(1) and AR(2) tests provide evidence of the presence of first-order correlation, while showing no second-order correlation in the estimated residuals, confirming the dynamic nature of the models and the validity of the instruments. Finally, these diagnostic tests verify that all the estimated models are correctly specified.

Table 2. Economic Institutions and Sustainable Development

Variables	EF (Eco. Freedom)	DEG (D.J Eco. Glob)
Panel A: Empirical Estimates		
	Coeff. (S.E)	Coeff. (S.E)
SDI(t-1)	0.695***	0.954***
	(0.206)	(0.026)
EI	0.020*	0.018*
	(0.011)	(0.010)
LCPI	0.472*	0.225**
	(0.028)	(0.118)
LFD	0.475**	0.476*
	(0.221)	(0.280)
URB	-0.002	-0.001
	(0.078)	(0.001)
REC	0.278***	0.045**
	(0.089)	(0.019)
C	-0.231**	-0.016
	(0.089)	(0.027)
Panel B: Diagnostic Tests		
AR(1)	0.011	0.011
AR(2)	0.76	0.768
Hansen Test	1.00	1.00
No of instruments	236	104
No of Observations	2016	2294

Source: Authors' calculations.

Notes: Panel A of Table 2 presents two variants of equation 2 explaining the impact of economic institutions on sustainable development.

$$SDI_{it} = \alpha_1 + \alpha_2 SDI_{it-1} + \alpha_3 EI_{it} + \alpha_4 LCPI_{it} + \alpha_5 LFD_{it} + \alpha_6 URB_{it} + \alpha_7 REC_{it} + \mu_{it} \quad (1)$$

Column 2 presents estimates with economic freedom while column 3 displays estimates with D-Jure Economic globalization. Both models are estimated by using panel of 94 countries for the time period 1990-2019. In estimation of each model, 1-4 lags of independent variables including URB, LCPI, EF, DEG and some exogenous variables have been used. Panel B reports the Diagnostics. Arellano-Bond test and Hansen test. The null hypothesis for Arellano-Bond AR (2) test is no autocorrelation (H_o = No autocorrelation) whereas, the null hypothesis for Hansen test is all instruments are valid (H_o = all instruments are valid). In panel A, the values in parenthesis show robust standard errors (SE), while in panel B values show probability value (P-value). Where ***, ** and * shows significance at 1%, 5% and 10% level of significance, respectively.
Source: Authors' calculations.

4.2.2. Political Institutions and Sustainable Development

To examine the impact of political institutions on sustainable development, four indicators have been used. The results are shown in Table 3. Each column presents estimates from a different measure of political institution: de jure political globalization (col 2), democracy (col 3), civil liberty (col 4), and judicial independence (col 5). These indicators cover various aspects of political institutions, such as global agreements demonstrating commitment and compliance with international standards, political systems with different types of government, voting rights, levels of individual freedom, and the judiciary and legal framework's resilience to external pressures.

According to estimates, for all models, the average value of the sustainable development index when holding all other variables constant appears insignificant (with varying signs), indicating no clear pattern in SDI during the selected time period. The lagged dependent variable SDI(t-1) is statistically significant in all models, indicating high inertia in sustainable development over time. The coefficient ranges from 0.896 for CL to .921 for DPG. A coefficient close to 1 reflects very high persistence in SDI throughout the selected period. This clearly shows how past policies and practices have influenced current development outcomes, as past achievements lay the foundation for future progress (Acemoglu, Egorov & Sonin, 2019). Ke et al. (2020) report that countries with early and consistent environmental regulations tend to have smaller ecological footprints over time. This finding aligns with the idea that previous policies and institutional structures significantly shape long-term development outcomes.

All four measures of political institutions appeared statistically significant with positive signs, indicating that political institutions help promote sustainable development through various channels depending on their respective types. Political globalization involves the formal

integration of countries into global political institutions and agreements, promoting stability, cooperation, and shared norms. This, in turn, supports governance, reduces conflict, and fosters international cooperation, which are crucial for sustainable development (Dreher, 2006). Additionally, political globalization can lead to stronger institutional frameworks, enhancing both economic and environmental outcomes. It also facilitates policies that help minimize ecological footprints through more sustainable environmental regulations (Destek, 2020; Osuji & Abba, 2020; Schularick and Taylor, 2012).

Next, a one-unit increase in democracy appears to raise the SDI index by 0.156 units at the 5% significance level. The positive influence of democracy on sustainable development operates through transparency, accountability, and public participation in decision-making, which can improve the effectiveness of policies aimed at sustainable development. Acemoglu et al. (2019) explain that democracies tend to implement more sustainable policies, resulting in better environmental outcomes. Additionally, democratic institutions can help reduce ecological footprints by promoting environmental regulations and sustainable practices (Gani, 2021).

Our findings indicate that a 1-unit increase in civil liberty leads to a 0.054-unit increase in SDI at the 5% level of significance. Greater civil liberties are associated with improved sustainable development outcomes because they enhance democratic governance, which in turn fosters economic growth and social development by promoting inclusivity and accountability. Conversely, the absence of civil liberties can hinder innovation and economic progress, thereby obstructing sustainable development (Glaeser, 2020). In terms of ecological impact, civil liberties contribute to better environmental policies because they allow for greater public participation and advocacy in environmental issues, resulting in more effective and sustainable outcomes.

Finally, a 1-unit increase in judicial independence raises SDI by 0.031 units at a 10% level of statistical significance. Judicial independence emerges as a key factor, indicating that a fair and independent judiciary can boost economic growth and social stability by safeguarding property rights, enforcing contracts, and reducing corruption. Additionally, judicial independence supports economic growth by creating a stable and predictable legal environment (Feld & Voigt, 2003). Ecologically, judicial independence aids in enforcing environmental regulations, which promote sustainable resource management (Osuji & Abba, 2020).

By comparing all four measures of political institutions, it is observed that democracy has the highest impact, followed by civil liberties and judicial independence, while political globalization has the lowest impact in terms of magnitude. Democratic systems encourage accountability, citizen participation, and transparency in policy, which in turn improves human development as well as environmental sustainability. Moreover, democratic systems also ensure better public service delivery and responsiveness to the needs of both social welfare and environmental sustainability, even if this sometimes undermines larger business interests.

Similarly, the superior performance of judicial independence can be attributed to its vital role in ensuring fair and impartial law enforcement, reducing corruption, and providing a stable environment for investment and social policies. Effective judicial systems support long-term sustainability by upholding property rights, resolving disputes impartially, and maintaining transparency, which are essential for fostering both economic and ecological sustainability. This finding is relevant because it shows that for countries in the global south, people-centered political institutions are more crucial for achieving and maintaining sustainable development. In contrast, de jure political globalization has the weakest influence, as mere formal participation in international treaties or organizations often fails to lead to effective domestic policy changes or enforcement, especially in countries with limited governance capacity, resulting in a modest and indirect impact on sustainable development outcomes.

Acemoglu and Robinson (2012) clearly elaborated on the distinctive role of political institutions in a nation's development. Inclusive political institutions such as an independent judiciary, protection of civil liberties, democratic norms, and peaceful international relations promote inclusivity by expanding the size of the dominant coalition (Bellamy, 2012). This increased inclusivity provides platforms and mechanisms to address issues important to the public, including human development and climate change, making inclusive political institutions essential for achieving sustainability and overall well-being.

Table 3. Political Institutions and Sustainable Development

Variables	DPG (D.Pol. Glob)	DEM (Democracy)	CL (Civil Liberty)	JI (Judicial Independence)
Panel A: Empirical Estimates				
	Coeff. (S.E)	Coeff. (S.E)	Coeff. (S.E)	Coeff. (S.E)
$SDI_{(t-1)}$	0.921***	0.918***	0.896***	0.915***
	(0.027)	(0.033)	(0.033)	(0.031)
PI	0.025*	0.156**	0.054**	0.031*
	(0.014)	(0.075)	(0.023)	(0.017)
LCPI	0.118*	0.220**	0.258*	0.256*
	(0.014)	(0.096)	(0.135)	(1.134)
LFD	0.289*	0.716**	0.863**	0.679**
	(0.166)	(0.337)	(0.369)	(0.333)
URB	0.007	-0.003	-0.0060	-0.003
	(0.128)	(0.018)	(0.108)	(0.014)
REC	0.025*	0.045**	0.051**	0.041*
	(0.015)	(0.020)	(0.025)	(0.022)
C	0.801	-0.546	-0.026	-0.095
	(2.066)	(2.020)	(0.028)	(0.213)
Panel B: Diagnostic Tests				
AR(1)	0.011	0.027	0.022	0.022
AR(2)	0.776	0.734	0.294	0.300
Hansen Test	1.000	1.000	1.000	1.000
No of Inst.	220	238	275	327
No of Obs.	2314	1964	2241	2241

Source: Authors' calculations.

Notes: Panel A of Table 3 presents four variants of Equation 3 explaining the impact of political institutions on sustainable development.

$$SDI_{it} = \beta_1 + \beta_2 SDI_{it-1} + \beta_3 PI_{it} + \beta_4 LCPI_{it} + \beta_5 LFD_{it} + \beta_6 URB_{it} + \beta_7 REC_{it} + \mu_{it} \quad (2)$$

Columns 2-5 present estimates with D-Jure political globalization, democracy, civil liberty, and judicial independence, respectively. All models are estimated by using panel of 94 countries for the time period 1990-2019. In estimation of each model, 1-4 lags of independent variables including URB, LCPI,, DPG, CL, JI, and some exogenous variables are used.
Panel B reports Diagnostic tests. Arellano-Bond Autocorrelation test and Hansen test. The null hypothesis for Arellano-Bond AR (2) is no autocorrelation (H_o = No autocorrelation) whereas, the null hypothesis for Hansen test is all instruments are valid (H_o = all instruments are valid).
In panel A, the values in parenthesis show robust standard errors, while in panel B values show probability value (P-value). Where ***, ** and * shows significance at 1%, 5% and 10% level of significance, respectively.

By examining both economic and political institutions, political institutions outperform economic ones. Their superior performance is due to their direct role in shaping the broader governance environment where

economic policies and institutions function. Additionally, political institutions—through the rule of law, civil liberties, democratic accountability, and judicial independence—ensure that economic freedom and market activities lead to sustainable results. In fact, increased public awareness about climate change and environmental degradation can be more effectively addressed through political institutions. Conversely, economic institutions—such as economic freedom and globalization—support efficient market mechanisms and stimulate economic growth, but may also reflect the interests of the efficient yet environmentally irresponsible economic elite in the global south. Collectively, these attributes lead to more effective and lasting sustainable development outcomes compared to the more indirect influence of economic institutions.

Moving to the control variables, inflation appears positive and significant in all the models (economic and political institutions), implying greater sustainable development with an increase in inflation. Although this finding seems surprising, it is not completely unexpected, as earlier research has supported the favorable impact of inflation on the human development index as well as on economic growth. Yolanda (2017) documented that inflation originating from demand pull factors improves the human development index. Similarly, Ahmad et al. (2021) found that higher inflation instability improves environmental quality because higher inflation uncertainty restricts investment projects and reduces consumption, which in turn improves environmental performance. Moreover, Abdullayevich & Olimjono'g'li (2024) demonstrated that controlled inflation can encourage spending and investment, driving economic growth. Similarly, Muhammad (2023) also exerts a positive impact of inflation on economic growth. On the ecological side, Zheng et al. (2024) showed that inflation can negatively impact environmental policies by reducing the real value of environmental investments.

Financial development, measured by domestic credit to the private sector through banks, appears positive in all models, indicating that higher financial development is linked to greater sustainable development. Beck, Levine, & Loayza (2000) suggested that financial development boosts economic growth by improving resource allocation and mobilizing savings, while Levine (2020) argued that well-developed financial systems enable investments in productive activities, thus fostering economic growth. Zafar et al. (2021) pointed out that financial development could positively influence the environment if it encourages investments in green technologies. Beck, Demirgüç-Kunt, & Levine (2010) noted that the

relationship between financial development and growth is complex, with the potential for both positive and negative outcomes depending on the regulatory environment and the health of the financial sector. Furthermore, excessive credit growth can lead to unsustainable development patterns and increase the ecological footprint if investments are not directed toward sustainable projects (Yang, et al., 2024).

Renewable energy consumption has a positive and significant impact on sustainable development. The positive and significant coefficient for renewable energy use indicates that increased use of renewable energy promotes greater sustainable development. Utilizing renewable alternative sources results in lower carbon emissions, which directly support environmental sustainability while also helping to mitigate climate change (International Renewable Energy Agency, 2018). Transitioning to clean energy aligns with broader sustainability goals by improving air quality and adopting cleaner energy sources, fundamental to maintaining the Earth's livability (Fadilah et al., 2020; Jacobson et al., 2022; Panwar et al., 2011). Existing studies also emphasize that renewable technologies facilitate diversification and help build resilience, both essential for sustainable development (Apergis and Payne, 2010). Additionally, renewable energy consumption significantly decreases greenhouse gas emissions, contributing to environmental sustainability (Bilgili and Bağlıtaş, 2022), mitigating climate change impacts, and promoting ecological balance (Dong et al., 2020).

Panel B of the table shows diagnostic tests. As we know, the reliability and soundness of results from the system GMM estimation depend on the validity of the instruments. Therefore, Panel B reports the diagnostic tests, specifically J-statistics and AR(1), AR(2). The J-statistics confirm that the instruments used in the estimations are not correlated with the residuals and do not suffer from overidentification problems. Moreover, AR(1) and AR(2) tests provide evidence of the presence of first-order correlation, while showing no second-order correlation in the estimated residuals, confirming the dynamic nature of the models and the validity of the instruments. Finally, these diagnostic tests verify that all the estimated models are correctly specified.

To conclude, it is notable that both economic and political institutions play significant roles in the Global South. These developing countries are striving to achieve sustainable development by adopting various strategies, such as implementing environmentally friendly modes of production, innovating in the financial sector, and planning

urbanization, among others. In their pursuit of sustainable development, economic institutions facilitate the provision of equitable economic opportunities, promote private sector engagement, attract foreign investment, and foster global engagement. Similarly, political institutions support these efforts through legal frameworks such as ensuring civil rights, maintaining judicial independence, and upholding environmental responsibility. Therefore, sustainable development is greatly enabled by economic and political institutions in the Global South.

5. Conclusions and Recommendations

Sustainable development is a multifaceted concept that requires a multidimensional approach to understand the factors influencing it. In this context, economic and political institutions have received significant attention in shaping sustainable development, especially in developing countries. Institutions can have substantial effects because they influence individual and collective behaviors. They can both limit unsustainable actions and create opportunities for environmental activism, seeking new possibilities and enhancing productive capacities. Therefore, institutions can be a key factor in a country's progress across economic, social, and environmental areas. Strong and inclusive institutions promote an environment conducive to sustainable growth, whereas extractive institutions can result in poor outcomes. Specifically, economic and political institutions can play a crucial role in achieving positive development results if they are inclusive, while extractive institutions tend to have the opposite effect.

Considering its theoretical importance, this study aimed to empirically analyze the role of economic and political institutions in sustainable development. The study used various measures of economic (such as economic freedom and de jure economic globalization) and political (including de-jure political globalization, democracy, civil liberties, and judicial independence) institutions. For sustainable development, an index developed by Hickel (2020) was employed across 94 developing countries in the Global South from 1990 to 2019. The results showed that both economic and political institutions have significant and positive impacts on sustainable development. Notably, democracy has the greatest influence, while political globalization has the least impact among all political institution indicators. Similarly, judicial independence also emerged as an important factor in driving sustainable development. Among economic institutions, economic globalization was found to be slightly less effective than economic freedom, although both have positive

and significant contributions. Additionally, among other control variables, renewable energy and financial development are crucial areas to focus on for improving sustainable development in the Global South.

Based on the findings of the study, the study recommends establishing inclusive political and economic institutions. This would include implementing democratic norms such as free and fair elections, universal suffrage, and proportional representation at both national and local levels. Additionally, to address broader concerns about well-being and the environment, civil liberties can play an essential role. These fundamental rights can be safeguarded through an independent judiciary and adherence to international treaties related to institutional reforms.

On the economic front, the positive and significant effect of economic freedom highlights the need for a more market-friendly approach to economic policy. At the same time, care must be taken to ensure that economic freedom is truly inclusive, meaning it should reflect the interests of the masses in the global south. Although positive and significant, the coefficient of economic globalization remains low, indicating that the benefits of economic integration in the global south are not fully realized. This emphasizes the need for more concerted efforts to improve global economic connectivity and to develop mutually beneficial bilateral and multilateral economic relations for achieving sustainable development outcomes. In summary, the achievement of sustainable development in the global south is possible through the establishment of inclusive economic and political institutions.

The insights from our study open avenues for future research. For example, this study used each indicator of economic and political institutions in separate econometric models. However, future work may compute indices of economic and political institutions to examine their overall impact on the SDI. It will also enable the inclusion of both types of institutions in a single econometric model. Furthermore, different econometric techniques like panel ARDL and panel VAR could be used to analyze the long-term nature of this relationship. Additionally, future research may explore the nonlinear and/or interactive roles of political and economic institutions. Given these potential directions, our study provides a foundation for understanding the relationship between institutions and sustainable development.

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Appendix A

Table A1

Variables	Description	Data Source
SDI	Sustainable Development Index. The SDI incorporates three dimensions of sustainable development: the environmental dimension through the ecological impact index, social and human development through development index which is modified form of HDI. $$SDI = \frac{Development\ Index}{Ecological\ Impact\ Index}$$ Development Index $$= \sqrt[3]{Education\ Index * Life\ Expectancy\ Index * Income\ Index}$$ The ecological impact index: $1 + \frac{e^{AO} - e^{1}}{e^{4} - e^{1}}$, if AO > 4, then ecological impact index =AO – 2. AO= Average Overshoot= $$\sqrt[2]{\left(\frac{Material\ Footprint}{boundary} \geq 1\right) * \left(\frac{CO2\ emissions}{boundary} \geq 1\right)}$$ The ecological impact index measures how much the demand of humans has exceeded the natural capacity of the resources of earth. Average overshoot is calculated by using material footprint and CO_2 emissions, each divided by their respective per capita planetary boundary, which varies by population every year.	**Hickel (2020)**
EF	Economic Freedom Index measures the Ability to make economic decisions free from government interference, measured by indices considering rule of law, government size, regulatory efficiency, and open markets. rule of law incorporated in property rights, judicial system efficiency, and government corruption; government size included in the tax burden, government consumption, and financial balance; regulatory environment included in business freedom, labors freedom; efficiency of the customs business climate, efficiency and openness in the trade and investment freedom, and efficiency and openness in financial freedom. Each category is measured on a scale from 0 to 100. The overall value of EFI is then calculated by using arithmetic average of all categories (Heritage Foundation, 2021).	Economic freedom of world database
DEG	De Jure Economic Globalization is defined as the formal the global economy through policies, treaties, and agreements, encompassing trade, investment, integration of countries into and financial regulations.	KOF global index_2023

Variables	Description	Data Source
DPG	Dejure political Globalization formal integration of countries into global political systems through participation in international organizations, treaties, and agreements, promoting political cooperation and governance.	KOF global index_2023
DEM	Democracy a system of government where power is vested in the people, characterized by free and fair elections, political participation, civil liberties, and the rule of law.	Polity_v
CL	Civil Liberties the degree of individual freedoms such as speech, assembly, and the press, often quantified by indices like those from Freedom House.	The global state of democracy indices Version 7
JI	Judicial Independence the extent to which the judiciary is free from external influences, assessed using indices from sources like the World Economic Forum	The global state of democracy indices Version 7
Inf	Inflation measured through Log of Consumer Price Index (2010 = 100)	World Development Indicators (WDI) 2023
LFD	Log of Financial Development measured through credit to the private sector by the bank	World Development Indicators (WDI) 2023
URB	Urbanization measured through Urban population as % of total population	World Development Indicators (WDI) 2023
REC	Renewable Energy Consumption as % of total final energy consumption	World Development Indicators (WDI) 2023

Appendix B

Table B1- List of Countries

Afghanistan	China	Jordan	Qatar
Antigua and	Colombia	Kenya	Rwanda
Barbuda	Congo (dem/rep)	Laos	Samoa
Argentina	Costa Rica	Lebanon	Sao tome and
Bangladesh	Cote	Lesotho	Principe
Barbados	D'ivoire/ivory	Libya	Saudia Arabia
Belize	cost	Madagascar	Senegal
Benin	Cuba	Malawi	Sierra Leone
Bhutan	Djibouti	Malaysia	Singapore
Dem. Rep. of the	Dominican	Maldives	Sirilanka
Congo	Republic	Mali	south Africa
Oman	Ecuador	Mauritania	Syria
Trinidad and	Egypt	Mauritius	Tajikistan
Tobago	Ei Salvador	Morocco	Tanzania
Algeria	Fiji	Mozambique	Thailand
Angola	Gabon	Myanmar	Tunisia
Bahrain	Gambia	Namibia	Uganda
Bolivia	Ghana	Nepal	United Arab
Botswana	Guatemala	Nicaragua	Emirates
brazil	Guinea	Niger	Uruguay
Brunei	Haiti	Pakistan	Vanuatu
Burkina Faso	Honduras	Panama	Vietnam
Burundi	India	Papua New Guinea	Zambia
Cambodia	Indonesia	Peru	Zimbabwe
Central African	Iran	Philippines	
Republic	Iraq	Paraguay	
Chile	Jamaica		