Strengthening Institutional Quality–A Step towards Improving Energy Poverty

BY J. BOHLMANN, R. INGLESI-LOTZ, AND W. KRITZINGER

Abstract

This article emphasises the role of institutional quality in addressing energy poverty, particularly in developing regions like Sub-Saharan Africa, where weak governance hinders energy access. It argues that sustainable solutions require strong institutions alongside technological and financial interventions, linking energy access (SDG 7) to good governance (SDG 16).

WiZelle Kritzinger, **Roula Inglesi-Lotz**, and **Jessika Bohlmann** are with the Department of Economics, University of Pretoria. Corresponding author WiZelle Kritzinger can be reached at wizellekritzinger@gmail.com

Despite global efforts to improve access to energy, energy poverty is still persistent globally. Institutional quality has been identified as important in shaping energy outcomes. Institutions, defined by their ability to enforce rules, manage resources, and create an enabling environment for investment and policy implementation, are central to addressing the underlying causes of energy poverty. Weak governance, regulatory failures, corruption, and inadequate policy frameworks often undermine efforts to expand access to clean and affordable energy, particularly in developing regions. This study explores the intricate relationship between energy poverty and institutional quality, arguing that sustainable solutions must go beyond technological and financial interventions to include strengthening the 'rules of the game.' By examining the impact of governance on energy access, we emphasise the need for robust institutions as a fundamental pillar in the fight against energy poverty and the achievement of Sustainable Development Goal 7 (SDG7) which aims to ensure access to affordable, reliable, sustainable, and modern energy for all.

Energy poverty is no longer a singular issue; it includes a complex variety of challenges that extend beyond the mere absence of access to electricity. It includes inadequate access to clean cooking facilities, unreliable energy supply, and the inability to afford modern energy services, all of which severely impact the quality of life, economic opportunities, and health outcomes of millions of people worldwide. There are many definitions of *energy poverty*, but a definition that encompasses the multifaceted nature of the issue is the one by Reddy et al. (2000): *"the absence of sufficient choice in accessing adequate, affordable, reliable, high-quality, safe and environmentally benign energy services to support economic and human development".*

As pictured in Figure 1, and again highlighting the intricacies of energy poverty, SDG7 and having access to energy affects many other aspects of people's lives. Therefore, the success of SDG7 is deeply inter-aligned with SDG16, which emphasises peace, justice, and strong institutions. Robust institutions are essential for designing and implementing effective energy policies that sustainably reduce energy poverty. Transparent governance, the rule of law, and the eradication of corruption are crucial for ensuring that energy resources are managed efficiently and that investments in energy infrastructure reach the most vulnerable populations.

Institutions play a critical role in defining energy poverty, shaping the criteria used to measure it, and influencing the design of interventions. In Europe, energy poverty is often defined by the ability to adequately heat one's home, reflecting concerns about affordability and indoor thermal comfort. This definition drives

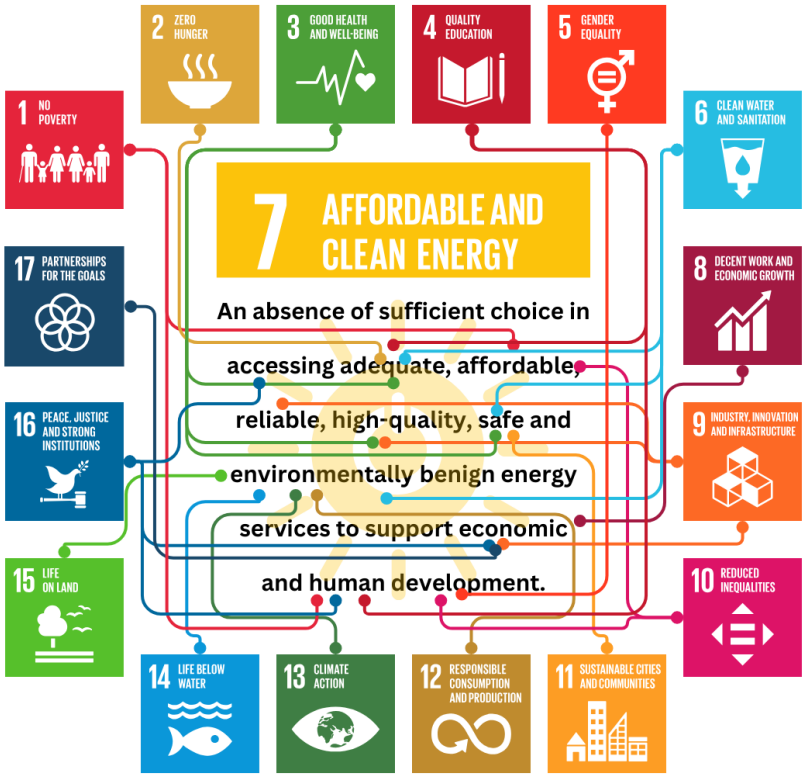

Figure 1: SDG7 in the centre of SDGs
Source: Authors' design

interventions focused on improving energy efficiency, reducing energy costs, and ensuring affordable access to heating. In contrast, in Sub-Saharan Africa, energy poverty is frequently defined by access to reliable electricity services, reflecting the region's development challenges. This definition leads to interventions centred on expanding electricity infrastructure and promoting access to renewable energy. These regional variations in defining energy poverty demonstrate how the objectives of the governing bodies shape the solutions implemented, ultimately determining which populations benefit and how effectively energy poverty is mitigated.

Figure 2 illustrates global disparities in access to electricity, clean cooking fuels, and institutional quality, as measured by the corruption perception index and rule of law. These factors are critical as they highlight systemic inequalities that impact development, economic growth, public health, and environmental sustainability. The maps reveal that sub-Saharan Africa is crucial in the energy poverty-institutional quality conversation, considering the region's low access to clean fuels and electricity, coupled with weak institutional quality, characterised by poor rule of law and high corruption.

The literature related to energy access and its link to institutional quality emphasises the critical role of governance in enhancing energy access, specifically electrification and access to clean cooking technologies (Ahlborg et al., 2015; Acheampong, 2023). Effective governance systems, characterised by transparency, accountability, and coordination among stakeholders, are crucial for designing and implementing successful energy policies that improve energy access, particularly in rural areas (Acheampong et al., 2022a,b; Acemoglu et al., 2003). Good governance can drive investment in energy infrastructure by creating a stable environment that enforces contracts and protects property rights, thereby encouraging private sector participation in clean energy solutions (Acheampong, 2023).

Empirical studies show mixed results on the impact of governance on electrification and access to clean cooking technologies, with some findings indicating positive effects of institutional quality, such as the rule of law and control of corruption, on household electricity consumption and rural electrification in Sub-Saharan Africa (Ahlborg et al., 2015; Trotter, 2016; Best and Burke, 2017). However, evidence on the impact of governance on clean cooking technologies is less consistent, with some studies showing significant positive effects while others report negligible impacts (Acheampong et al., 2023; Sarkodie and Adams, 2020). The effect of corruption on a country's economy, particularly on investment, is characterised by uncertainty. While it is widely assumed that increasing corruption deters investors, it also presents chances for corporations to profit from corrupt practices, perhaps leading to additional investment. On the other hand, Asiedu and Freeman (2009) discovered a negative impact on invest-

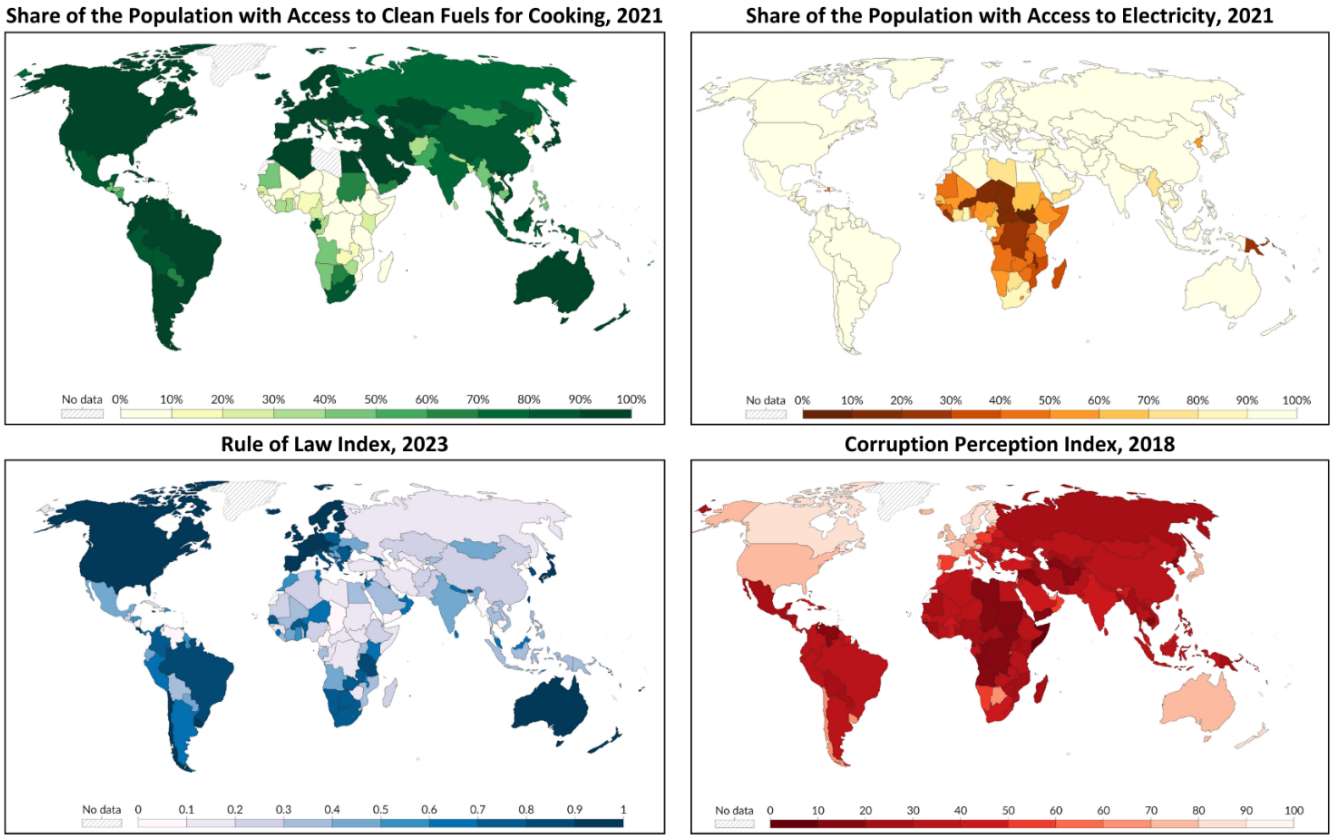

Figure 2: Geographical representation of global indicators: access to clean fuels for cooking, access to electricity, Rule of Law Index (0 = weakest, 1 = strongest), and Corruption Perception Index (0 = most corrupt, 100 = least corrupt)
Source: Our World in Data

ment growth, particularly in Latin America, the Caribbean, and Sub-Saharan Africa. However, they attribute this to the fact that their study was based on firm-level data, which did not account for potential barriers to entry for new firms. These entrance obstacles may result in investment losses, implying that corruption may harm investment growth. (Venter & Inglesi-Lotz, 2022). The literature highlights gaps, particularly regarding the effects of governance on rural access to clean cooking fuels and electrification in regions like Sub-Saharan Africa and Latin America, suggesting a need for further research in these areas.

Particularly for the African continent, energy poverty remains a significant challenge, closely tied to the quality of institutions. While South Africa has made progress in expanding energy access, millions still live in energy poverty, facing unreliable supply and high energy costs. Institutional weaknesses—such as corruption, lack of transparency, and inadequate regulatory frameworks—exacerbate these challenges, making it difficult to implement effective energy policies. Across the continent, similar issues persist, where fragile institutions hinder the development and maintenance of energy infrastructure. Without strong institutions, even the best-intended energy policies may fail to achieve their goals. Therefore, strengthening institutional quality is crucial for addressing energy poverty in Africa, ensuring that energy policies are not only well-designed but also effectively implemented and monitored to benefit all citizens, particularly the most marginalised. The intersection of SDG7 and SDG16 underscores the importance of good governance in achieving universal energy access and advancing sustainable development across the continent.

Figure 3 shows the relationship between the share of the population with access to clean cooking technologies and fuels (EP1) and various institutional quality indicators: Control of Corruption, Government Effectiveness, Political Stability and Absence of Violence/Terrorism, Regulatory Quality, Rule of Law, and Voice & Accountability. Across all six plots, there is a positive correlation, with access to clean cooking technologies increasing as institutional quality improves. The strength of this relationship varies: it is stronger for indicators such as Government Effectiveness and Rule of Law, where points are more clustered, compared to Political Stability and Voice & Accountability, where the correlation is weaker.

Figure 4 presents a similar analysis for the share of the population with access to electricity (EP2). Again,

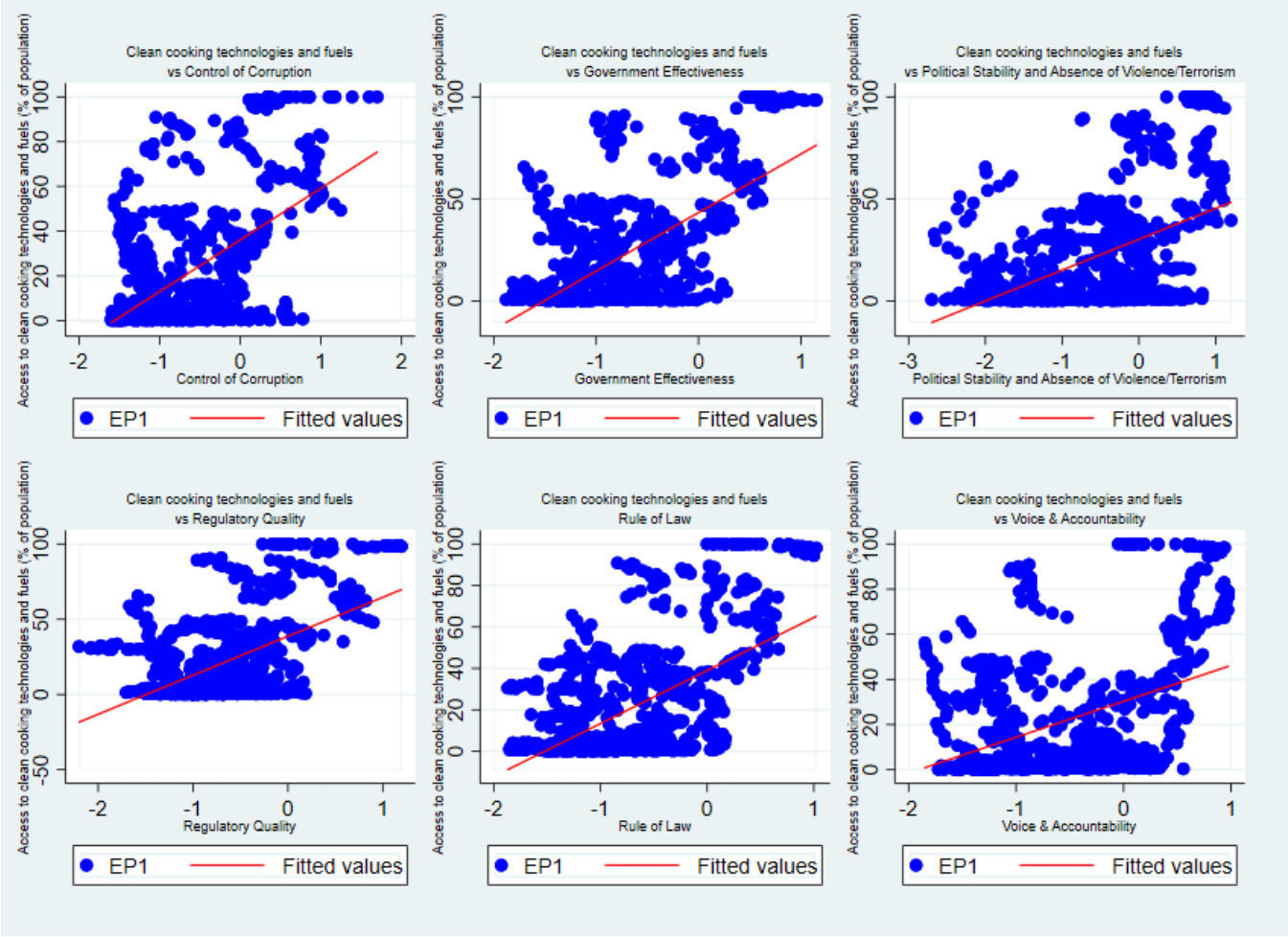

Figure 3: Relationship between access to clean cooking technologies and fuels and various institutional quality indicators
Data Source: World Development Indicators and World Governance Indicators

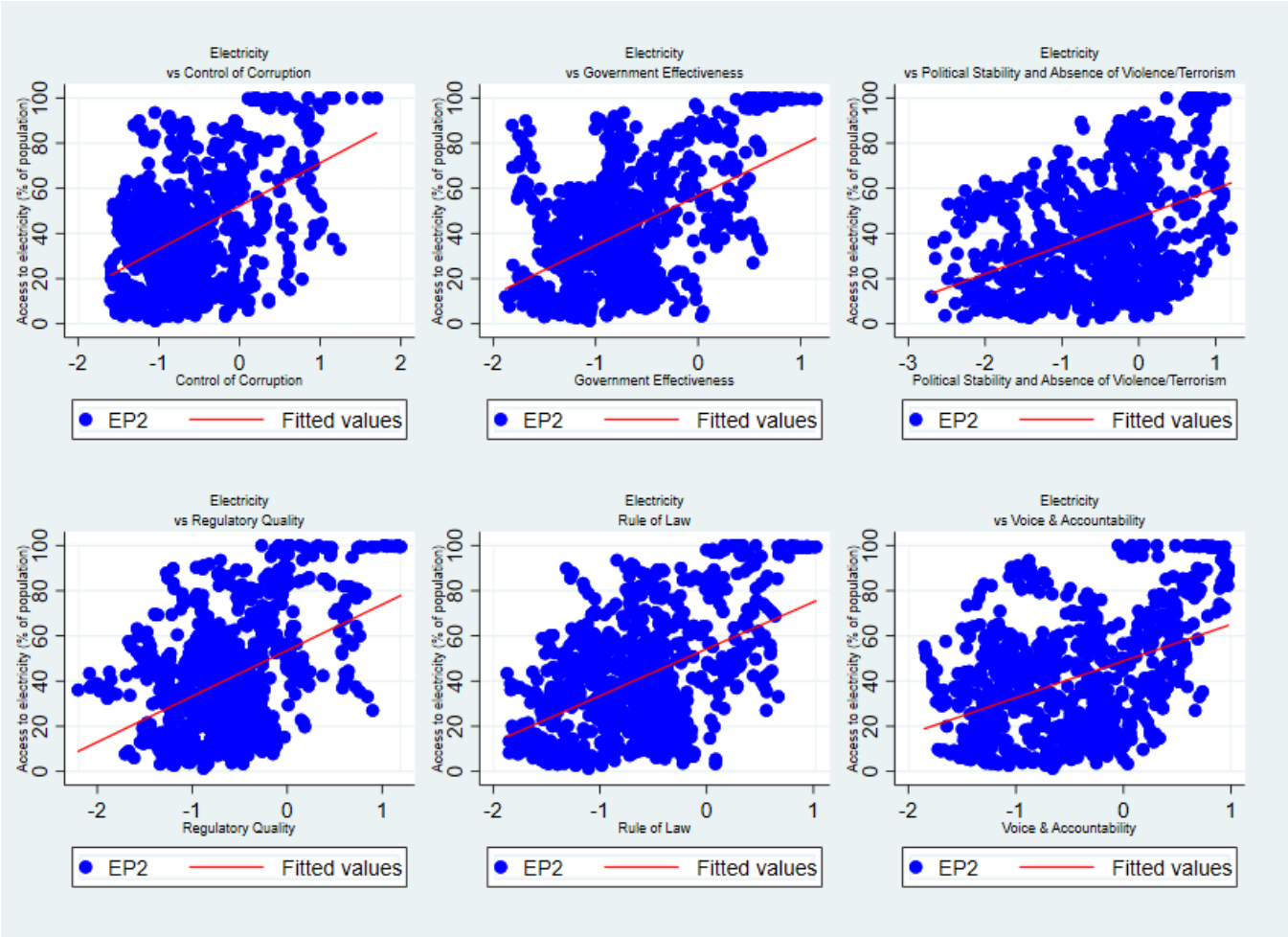

Figure 4: Relationship between access to electricity and various institutional quality indicators
Data Source: World Development Indicators and World Governance Indicators

each scatter plot shows a positive correlation, with access rising as institutional quality improves. The relationship appears stronger for Government Effectiveness, Regulatory Quality, and Rule of Law, and weaker correlations are observed for Political Stability and Voice & Accountability. Overall, these findings suggest that enhanced governance, regulation, and law enforcement are crucial for improving access to both electricity and clean technologies and fuels for cooking.

Energy poverty and institutional quality are related, and this relationship can be seen directly through the application of successful policies or indirectly through channels like economic growth. In order to ensure that investments in energy infrastructure benefit those who need them the most, regulate the energy market, and promote equal access to energy, institutions are essential. Robust institutions contribute to the establishment of a steady atmosphere for the execution of policies, catering to the particular requirements of energy-deprived communities and guaranteeing the equitable allocation of resources. Energy poverty is impacted by economic growth, which is indirectly driven by institutional quality. More people can now afford modern energy services because of good governance, which also creates a climate that is favourable for investment, stimulates economic activity, and raises household earnings. But without open, responsible, and effective institutions, economic progress could not result in better access to energy, underscoring the crucial role that institutions play in reducing energy poverty both directly and indirectly.

In theory, improved access to energy should be facilitated by high institutional quality, as defined by transparency, effective governance, and efficient regulation. However, in certain specific instances, strong institutional quality may inadvertently lead to temporary issues in energy access. Here are a few examples of how this could happen:

Regulatory rigour: In some circumstances, tight compliance requirements and high standards for energy providers may result from strong laws and institutional quality. While this is typically good for long-term sustainability and safety, it may cause difficulties for smaller or less established energy providers to satisfy these strict criteria, affecting access.

Price adjustments: Increased institutional quality may result in more transparent pricing systems and the phase-out of subsidies or price controls. While this is necessary for a fair and sustainable energy market, it

may result in short-term price hikes, limiting access for low-income communities.

Renewable energy transition: As institutions prioritise sustainable and cleaner energy sources, there may be brief disruptions throughout the transition from fossil fuels to renewable energy. Such shifts can have an immediate impact on energy availability and access.

It is crucial to highlight that good institutional quality is expected to improve energy poverty in the long run by assuring efficiency, sustainability, and affordability. Any short-term disruptions or obstacles should be considered when building a more reliable and equitable energy system. Institutions should address these concerns proactively through targeted policies and support mechanisms to ensure that access to energy is not harmed while institutional quality is improved.

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