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**The Political Economy of Data Production and Dissemination in Low-Income Countries: Enhancing Statistical Capacity for Sustainable Development**

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## **The Political Economy of Data Production and Dissemination in Low-Income Countries: Enhancing Statistical Capacity for Sustainable Development**

The generation and distribution of data serve as fundamental components in influencing the political economy of low income countries (LICs). Although data plays a pivotal role in shaping policy and promoting economic development, low income countries encounter significant obstacles in producing and effectively employing trustworthy data. The challenges arise from constraints in resources, inadequacies in institutional frameworks, and a lack of technical capacity to perform regular, high-quality surveys, including household consumption studies. Furthermore, the political economy of data is frequently molded by power dynamics, which affect the accessibility, quality, and transparency of the information that governments, civil society, and international organizations depend on. This paper examines the intricate dynamics of data production and dissemination within the framework of low income countries, emphasizing the influence of governance structures, institutional frameworks, and political incentives on their liability and accessibility of data. This analysis delves into the ways in which deficiencies in data regarding income distribution, poverty assessment, and welfare evaluation impede the development of sound economic policies and the oversight of Sustainable Development Goals (SDGs). This study examines the influence of state capacity, political will, and external actors on the production and dissemination of data, revealing the underlying structural challenges that hinder the equitable distribution of information among various stakeholders. Utilizing case studies from Sub-Saharan Africa and Asia, this paper explores the ways in which political incentives frequently result in the manipulation or suppression of data, thereby distorting economic indicators and constraining the opportunities for evidence-based policy development. This analysis highlights the tendency of governments to emphasize specific data that corresponds with their political objectives, often neglecting critical socio-economic metrics like inequality and public health. Furthermore, the paper explores how greater collaboration between the public and private sectors, as well as the integration of innovative data sources, can enhance the statistical capacity of LICs and ultimately contribute to more accurate economic growth measurements and better welfare outcomes.

## **Introduction**

The absence or inadequacy of comparable official statistics in Africa and other low-income countries, stemming from the limited capacity of national statistical systems, constitutes a widespread issue which hinders sustainable and equitable development that will benefit development actors at different levels (Devarajan, 2011; Alvarez et al 2011; World Bank, 2021). Data production can benefit all development actors at different levels,

The scale and technical nature of the issue of inadequate statistics in Africa are reasonably well understood. Discussions and actions aimed at addressing the deficiencies in statistical capacity and output have revealed specific issues and bottlenecks in statistics production. These include irregular data collection, insufficient financial and human resources, and a lack of technical skills, particularly within national statistical offices, which are frequently cited as contributing factors to the generation of poor-quality statistics (Eele, 1989 & PARIS21, 2005). The issues are often perceived as a vicious cycle: incomplete or low-quality official statistics fail to meet policymakers' needs, leading to reduced funding or resources for the national statistical system, which subsequently diminishes demand and exacerbates the quality of statistics produced (Scott, 2005). The resolutions of the General Assembly and the Economic and Social Council emphasize the critical role of official statistics in both national and global development agendas. Considering the essential function of high-quality official statistical information in analysis and informed policy decision-making for sustainable development, peace, and security, as well as for enhancing mutual knowledge and trade among states and peoples in an increasingly interconnected world that requires openness and transparency, it is important to recognize that public trust in the integrity of official statistical systems and confidence in statistics largely rely on adherence to fundamental values and principles essential for any society aiming to comprehend itself and uphold the rights of its members. In this regard, the professional independence and accountability of statistical agencies are critical (United Nations, 2015).

Drawing from institutional theory, the theory highlights both formal rules and informal practices on political and economic outcomes (North, 1990; Hall & Soskice, 2001). In data systems, institutions dictate the collection of data, the metrics employed, and the processes of information dissemination or suppression. The institutional approach highlights the significance of path dependence and the enduring nature of institutional arrangements across time (Pierson, 2000). Historical legacies, such as colonial administrative frameworks and post-independence political arrangements, significantly impact current data production systems. External actors, including multilateral organizations and donors, influence the

imposition of statistical standards and the provision of technical assistance, which may not necessarily align with domestic priorities (Andrews, Pritchett, & Woolcock, 2017).

From the empirical ground, there are many studies that empirically test the statistical systems across many countries regardless of income level. For instance, Jerven's (2013) *Poor Numbers* is a significant empirical study on the political economy of data, especially concerning Sub-Saharan Africa. Through comprehensive fieldwork and interviews, Jerven demonstrates that economic and social statistics are frequently generated using antiquated methods, limited field data, and assumptions established through negotiations between governments and international organizations. His research indicates that in numerous instances, metrics like GDP, poverty, and population are often derived more from estimation or political considerations than from precise measurement. Jerven's example of Ghana's GDP rebasing, resulting in a 60% upward revision and reclassification by the World Bank, demonstrates how statistical reforms can significantly impact perceptions of economic performance. The author records the ways in which political contestation, especially regarding population statistics in nations such as Nigeria, has resulted in systemic mistrust and skewed development planning.

Anderson and Whitford (2015) using panel approach present cross-national evidence indicating that the adoption of general-purpose technologies, such as broadband internet; improve statistical capacity, contingent upon the presence of institutional readiness and infrastructure. Their findings highlight the necessity of aligning technological investments with governance reforms. Similarly, Tomizawa and Masugi (2018) contend that the structure of statistical institutions is essential for the effectiveness and credibility of statistical outputs. This finding is supported by Kaewkungwal et al. (2020), whose survey of researchers and data managers in Thailand indicates that regulatory uncertainty, insufficient incentives, and weak institutional mandates persistently obstruct effective data sharing and collaboration.

Jahani et al. (2021) illustrate the capacity of mobile phone data and machine learning to improve official statistics in contexts with limited data availability. The study utilized call detail records (CDRs) from more than 500,000 users in two countries to create a framework that extracted over 1,400 features for predicting demographic characteristics, including gender, age, and socio-economic status. The models attained a prediction accuracy of up to 88.4% for gender, utilizing only metadata, despite the use of relatively small training sets. This method provides a scalable and cost-effective means of enhancing national statistics, especially in developing regions where traditional data collection is constrained.

The research conducted by Tapsoba, York, and Noumon (2016) investigates the potential of enhanced statistical capacity to mitigate the procyclicality of fiscal policy in developing nations. The authors construct a Statistical Capacity Building (SCB) index utilizing panel data from 62 countries spanning 1990 to 2012, with a focus on technical assistance related to national accounts, prices, government finance, and monetary/financial statistics. Greater statistical capacity is associated with reduced procyclical government spending. The effect is more pronounced in countries with weaker budget institutions, such as those deficient in transparency or robust regulations, suggesting that institutional context significantly influences the advantages of enhanced statistical capacity. Owen and De Herdt (2019) examine the prolonged delay (2006–2018) in conducting a national census in the Democratic Republic of the Congo (DRC), despite widespread agreement on its importance. The authors analyze the history of the "unaccomplished census," highlighting how limited domestic capacity, inconsistent funding, politicization of the census process, and fragmented donor involvement have collectively led to its failure.

Agrawal and Kumar (2012) in “Nagaland’s Demographic Somersault” conclude that census data for Nagaland from 1981 to 2001 significantly overestimated the population, especially in light of electoral constituency delimitation considerations. The overestimation conferred political advantages to specific regions or groups, which can be considered the primary motivating factor. Upon the deferral of delimitation, the incentive to exaggerate population numbers decreased, resulting in a downward adjustment of figures in the following census.

## **Data and Sources**

### **Data**

This study utilizes a balanced panel dataset covering 21 low-income countries over the period 2016 to 2023. The countries included—based on the World Bank’s classification of low-income economies are: Afghanistan, Burkina Faso, Burundi, Chad, Democratic Republic of Congo, The Gambia, Guinea-Bissau, Liberia, Madagascar, Mali, Mozambique, Niger, Rwanda, Sierra Leone, Somalia, Sudan, Syria, Togo, Uganda, and Yemen.

Variables and Data Sources

### **Model Specification**

$$SPI_{it} = \alpha + \beta_1 SDG1_{it} + \beta_2 POP_{it} + \beta_3 SDG16_{it} + \beta_4 SDG17_{it} + \beta_5 GovEff_{it} + \beta_6 RQ_{it} + \beta_7 RL_{it} + \beta_8 ODA_{it} + \varepsilon_{it}$$

In the specified model, the dependent variable is the Statistical Performance Indicators (SPI) Overall Score, obtained from the World Bank (2023). The SPI is a composite index ranging from 0 to 100 that measures a country's ability to produce, manage, and disseminate high-quality statistical data.

The core independent variables include three Sustainable Development Goals (SDGs), reflecting progress in key development areas:

- SDG 1: No Poverty
- SDG 16: Peace, Justice, and Strong Institutions
- SDG 17: Partnerships for the Goals

These SDG scores are drawn from the Sustainable Development Report and are scaled from 0 (lowest performance) to 100 (highest performance), representing a country's advancement toward each goal.

To account for institutional quality, the model includes three governance indicators sourced from the Worldwide Governance Indicators (WGI) compiled by the World Bank:

- Government Effectiveness (GovEff): Assesses the quality of public services, civil service competence, and the independence of government institutions from political pressures.
- Regulatory Quality (RQ): Measures the ability of the government to formulate and implement sound policies and regulations.
- Rule of Law (RL): Captures perceptions of the extent to which agents have confidence in and abide by the rules of society, including contract enforcement, property rights, and the functioning of the judiciary.

Additional control variables include:

- Population (POP): Total population, sourced from the World Development Indicators (WDI) by the World Bank.
- Official Development Assistance (ODA): Net ODA received (in current US dollars), also obtained from the World Bank's WDI database.

## Descriptive Statistics

The descriptive statistics of the variables utilized in the study are shown in Table 1. Wide differences in statistical competence across low-income nations are reflected in the dependent variable, Statistical Performance Indicators (SPI), which has a mean value of 2.26 with significant variance among countries, ranging from -66.09 to 48.53. Rule of law (ROL), regulatory quality (RQ), and government efficiency (GE) are three metrics of institutional quality that show negative mean values, indicating enduring institutional flaws in the sample. Although the distribution of official development assistance (ODA) reveals unequal aid distribution among nations, ODA nonetheless averages adversely. As anticipated given the log transformation, the population (POP\_LOG) exhibits comparatively little variance.

However, There are disparities in progress across the SDG dimensions, as evidenced by the higher average scores for SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities), while SDG 16 (Peace, Justice, and Strong Institutions) and SDG 17 (Partnerships for the Goals) show lower means. The Jarque-Bera test results, which are significant for almost all series, further support the skewness and kurtosis statistics, which indicate that the majority of variables depart from normality. These trends show significant variation in sustainable development and institutional quality metrics among low-income nations, which makes them a good starting point for panel regression analysis.

**Table 1: Descriptive Statistics**

Variables	Obs.	Mean	Std. dev.	Min	Max
Statistical Performance Indicators (SPI) Overall Score	138	2.257	8.292	-66.095	48.528
Rule of Law	138	-2.523	8.869	-56.132	12.019
Government Efficiency	138	-1.989	8.153	-61.320	10.096
Official Development Assistance	117	-1.415	12.392	-63.676	41.945
Population	138	0.020	0.084	-0.958	0.045
SDG 1: No Poverty	158	24.234	16.419	0.000	65.430
SDG 16: Peace, Justice, and Strong Institutions	118	-0.064	1.954	-5.645	4.801
SDG 17: Partnerships for the	138	0.689	1.372	-2.976	4.795

Goals					
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## Result

The findings of the fixed effects regression analyzing the political economy factors that influence statistical ability in low-income nations as determined by the Statistical Performance Indicators (SPI) are shown in Table 2. The analysis includes key economic and demographic factors (population size and official development assistance), institutional quality variables (rule of law, government efficiency, and regulatory quality), and a few Sustainable Development Goal (SDG) dimensions, including SDG 1 (No Poverty), SDG 16 (Peace, Justice, and Strong Institutions), and SDG 17 (Partnerships for the Goals). The model provides reliable estimates of the factors influencing statistical performance by controlling for unobserved variation across nations and years by taking into account both cross-sectional and temporal fixed effects. The results offer important insights into how institutional strength, external partnerships, and domestic characteristics influence the capacity of national statistical systems to produce and disseminate high-quality data for sustainable development.

**Table 2: Fixed effects regression**

Variables	Fixed Effect Model
Rule of Law	0.415** (0.211)
Regulatory Quality	-0.051 (0.063)
Government Efficiency	-0.432** (0.210)
Official Development Assistance	-0.004 (0.054)
Population	209.338 (186.834)
SDG 1: No Poverty	0.179*** (0.134)
SDG 16: Peace, Justice, and Strong Institutions	-0.057 (0.363)
SDG 17: Partnerships for the Goals	1.822** (0.552)

Constant	-9.557 (6.191)
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Robust standard errors in parentheses

\*\*\*  $p < 0.1$ , \*\*  $p < 0.05$ ,

The findings of the fixed effects regression offer valuable information on the factors that influence statistical competence in low-income nations as determined by the Statistical Performance Indicators (SPI). About 40.5% of the variance in SPI scores can be explained by the model ( $R^2 = 0.405$ ), and the model's joint significance is validated ( $F$ -statistic = 1.874,  $p < 0.05$ ). This implies that the capacity of nations to generate and distribute trustworthy data is significantly influenced by both institutional quality and sustainable development factors.

Rule of Law (ROL1) is one of the institutional quality variables that shows a positive and marginally significant influence ( $p = 0.053$ ), suggesting that nations with more stringent legal frameworks often have greater statistical capability. This bolsters the idea that consistent norm enforcement builds institutional trust, which in turn improves transparency and data reporting (Kaufmann et al., 2010; World Bank, 2021). On the other hand, a statistically significant negative coefficient ( $p = 0.042$ ) is established for Government Efficiency (GE1). Despite being counterintuitive, this finding might indicate that formal government efficiency reforms in certain low-income nations might not immediately result in improved data systems, particularly if they are not supported by focused investments in national statistical offices (Andrews, Pritchett, & Woolcock, 2017). However, there is no discernible effect on Regulatory Quality (RQ1), indicating that regulatory reforms by themselves are not enough to improve statistical systems. This is in line with research showing that enforcement, not formal regulations, is what determines institutional effectiveness (Acemoglu & Robinson, 2012).

Official Development Assistance (ODA1) is negligible when considering the economic driver, demonstrating that foreign funding inflows by themselves do not always improve statistical capability. This supports the literature's concerns that institutional alignment with donor support and domestic absorptive ability are critical to assistance effectiveness (Morrissey, 2015; Clemens, Radelet, & Bhavnani, 2012). It implies that ODA aimed at development projects could avoid spending money on statistical infrastructure if there is a lack of strong local ownership.

The positive but statistically insignificant effect of population size (POP\_LOG1) suggests that, even though bigger populations could increase the demand for data, this does not always result in better statistical performance in low-income environments. Jerven (2013) notes

similar results, emphasizing that poor administrative ability and budget limitations frequently cause data quality to lag behind population increase in Africa.

SDG 17 (Partnerships for the Goals) stands out as a very significant and positive factor ( $p = 0.001$ ) among the Sustainable Development Goal (SDG) indicators. This emphasizes how important international collaboration and partnerships are to bolstering statistics systems, especially in low-income nations with limited domestic capability (United Nations, 2018; OECD, 2021). However, both SDG 1 (No Poverty) and SDG 16 (Peace, Justice, and Strong Institutions) are statistically insignificant. This implies that unless there is a clear investment in data systems, gains in poverty reduction and general governance outcomes might not be directly reflected in statistical performance (Jerven, 2013; Morten & Sommer, 2020).

When combined, these results demonstrate the political economics aspects of developing statistical competence. Credible data creation is made possible by high-quality institutions, especially those that uphold the rule of law, and SDG 17 partnerships seem to offer the financial and technical assistance required to improve distribution methods. However, donor-driven or reform-oriented techniques may not succeed without localized tactics catered to the requirements of national statistics systems, given the restricted role of ODA and the unanticipated detrimental impact of government efficiency. Therefore, enhancing statistical capacity in low-income nations necessitates a two-pronged strategy: building rule-based governance and institutional trust while strengthening international collaborations to guarantee that statistical systems are properly funded and strategically matched with development priorities.

## **Conclusion and Recommendations**

This study examines the intricate political and institutional factors affecting statistical capacity in low-income countries (LICs), emphasizing the roles of governance quality, international partnerships, and sustainable development priorities in the production and dissemination of reliable data. The findings indicate that institutional strength, particularly the rule of law, is crucial for enhancing statistical performance; however, other governance-related factors, such as government efficiency, may yield counterintuitive or negative outcomes. This indicates that formal reforms may be ineffective unless they are explicitly connected to enhancing the operational capacity of national statistical offices.

The findings indicate that foreign aid, as assessed by official development assistance (ODA), does not significantly influence statistical performance. This highlights the issue that aid, if not precisely directed and supported by domestic commitment, frequently does not enhance

fundamental statistical systems. International cooperation, as outlined by SDG 17, is a crucial factor that underscores the significance of partnerships and collaborative efforts in enhancing data infrastructure and capacity building. Conversely, progress in areas like poverty reduction and institutional peace (SDG 1 and SDG 16) does not appear to directly translate into improvements in statistical capacity, indicating a potential gap between development outcomes and the tools used to measure them.

Given these insights, there are several practical steps that can help strengthen statistical systems in low-income countries. First, more emphasis should be placed on building legal and institutional frameworks that safeguard the independence and credibility of statistical agencies. Trust in data begins with institutions that are perceived as neutral and professionally managed. Second, rather than assuming that general improvements in governance will trickle down to data systems, governments should make targeted investments in statistical infrastructure, including digital tools, skilled personnel, and regular survey operations.

Alignment of donor support with national priorities is a critical consideration. External funding for statistics frequently exhibits fragmentation or a narrow focus. It is essential for donors and development partners to collaborate more effectively with national authorities to guarantee that aid facilitates sustainable statistical development rather than merely addressing immediate reporting needs. The role of international partnerships and peer learning networks is significant, as they offer financial assistance, technical expertise, and shared best practices. Enhancing collaboration among national governments, regional entities, and international organizations is essential for the development of sustainable data ecosystems.

Finally, there is a need to diversify data sources and make better use of available technologies. In many LICs, reliance on traditional survey methods alone is neither cost-effective nor timely. Incorporating administrative data, geospatial tools, and digital platforms can help fill data gaps and reduce dependence on expensive household surveys. However, such innovations must be accompanied by capacity building and institutional readiness to manage and validate new data streams effectively.

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