Contribution ID: **234** Type: **Poster**

Data governance for development: An empirical assessment of open government data management quality and SDG performance

Monday 13 October 2025 19:10 (20 minutes)

In the current data-driven era, open government data serves as a catalyst for open innovation and the development of value-added services, while also promoting governmental transparency. These attributes collectively contribute to advancing the United Nations' Sustainable Development Goals (SDGs), a set of 17 objectives outlined in the 2030 Agenda for Sustainable Development, which encompass social, environmental, and economic dimensions aimed at achieving sustainable global transformation for future generations.

To ensure that open government data translates into tangible social value, it is essential to effectively manage key data quality dimensions—namely openness and coverage. The Open Data Inventory (ODIN) provides a systematic and quantitative evaluation of these dimensions by assessing the openness and coverage of official statistics and data across countries, covering sectors such as social, economic, and environmental data. ODIN evaluates specific attributes, including indicator coverage and disaggregation, data available last 5 years, administrative level of data, machine readability, metadata availability.

Despite the richness of ODIN data, limited research has quantitatively assessed the extent to which these data management dimensions contribute to the improvement of the SDGs to which the data are most closely aligned. To address this gap, the present study employs regression analysis to investigate the impact of aspects such as openness, coverage of open government data on the SDG outcomes. Specifically, we examine how the quality of data management in ODIN's "Education Facilities" and "Education Outcomes" subsections correlates with progress in SDG 4 (Quality Education), and how indicators related to "Health Facilities," "Health Outcomes," "Reproductive Health," "Population & Vital Statistics," and "Pollution" relate to SDG 3 (Good Health and Well-being).

For each SDG, multiple performance indicators are standardized and averaged to construct composite indices, which serve as the dependent variables. Additionally, we incorporate a two-year lag in ODIN scores to examine the causal relationship between open data quality and subsequent SDG performance.

By conducting this empirical analysis, the study aims to identify which specific dimensions of open data management most significantly influence SDG progress. The findings also contribute theoretically by clarifying how sector-specific data governance practices influence SDG outcomes, and practically by identifying which aspects of open data management should be prioritized to maximize measurable progress on SDG indicators.

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Session Classification: Poster Session

Track Classification: SciDataCon Persistent Themes: Policy and Practice of Data in Research