Decentralized Intelligence and the Future of Global Economic Data Governance: Bridging Micro and Macro Perspectives

Abstract:

The modern global economy is increasingly dependent on data-driven decision-making, yet existing economic data collection and governance structures remain fragmented, limiting their effectiveness in addressing macroeconomic and financial challenges. This paper proposes a novel framework for integrating micro- and macroeconomic data through decentralized intelligence, artificial intelligence (AI), blockchain, and next-generation data governance systems. By shifting from traditional top-down economic modeling to a dynamic, interoperable, and decentralized system, this research highlights the potential for enhanced forecasting accuracy, policy adaptability, and economic resilience.

The paper introduces the Global Data Governance Model (GDGM), which envisions an integrated analytical ecosystem that brings together international institutions (IMF, World Bank, OECD, WTO), governments, private sector entities, and civil society to facilitate real-time economic decision-making. A key component of this model is the Youth Data Ecosystem (YDE), a new paradigm for youth-led economic data collection and analysis, ensuring inclusivity and future-proofing economic governance.

Key themes explored in this research include:

1.Decentralized Economic Data Management: Integrating citizen-driven microdata with macroeconomic indicators from governments and financial institutions.

2.AI-Powered Macroeconomic Forecasting: Leveraging machine learning, neural networks, and quantum computing to enhance predictive models for inflation, employment, and global financial stability.

3.Blockchain for Economic Transparency and Security: Addressing data manipulation risks and enhancing cross-border financial transparency through distributed ledger technologies.

4.The Role of Emerging Digital Infrastructures: Establishing international data interoperability standards that allow seamless economic information exchange.

5.Youth Participation in Global Economic Intelligence: The Youth Data Integration Program (YDIP) as a mechanism for fostering inclusive, decentralized economic policymaking.

The research presents a four-phase strategy (2025–2050) to transition from fragmented data systems to autonomous AI-driven macroeconomic governance, outlining the role of international organizations in adapting regulatory frameworks to the digital economy.

By integrating big data analytics, real-time monitoring, and decentralized governance mechanisms, this paper advocates for a paradigm shift in global economic intelligence, offering policy recommendations for enhancing economic stability, increasing market efficiency, and fostering equitable growth in an increasingly complex financial landscape.