

Economic Impact of Artificial Intelligence on Inequality and Inclusive Growth under SDG10

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Abstract

This research paper investigates about the role of Artificial Intelligence in transforming modern economies by enhancing productivity and innovation. SDG 10 focuses on Reduced Inequalities. The potential of AI to reduce the inequality and promoting inclusive economic growth is highly important in a changing world order. It has been observed that AI can help to improve access to education, healthcare, and digital services. It also improves the status of businesses and boosts economic expansion leading to improved living standards. To achieve the SDG 10 goals correlation of income inequality and capability of AI to overcome it must be understood. To reflect upon the distribution of income in a population Gini coefficient is used as an economic perspective. The inclusivity of AI to reduce inequality by promoting productivity growth supporting innovation and enabling various government policies is discussed. To decrease the gap between developed and underdeveloped countries AI helps to access digital markets and financial systems. In certain situations, AI can increase inequality. Workers who are not equipped with necessary skills may be replaced due to automation. The gap between developed and underdeveloped countries may further widen due to unequal access to technology and digital infrastructure. To ensure AI's role to enhance inclusive economic growth proper government policies, investment in education and skill development are required. With proper implementation of AI's role in reducing inequality the goals of SDG 10 can be achieved which will eventually lead to Sustainable Economic Development.

Keywords: *Artificial Intelligence, SDG 10, Gini Coefficient, Inclusive Growth, Income Inequality, Sustainable Development, Economic Development*

1. Introduction

Artificial Intelligence refers to advanced systems where automation enables various tasks which normally require human intelligence. AI can be used in various economic attributes for improving efficiency and accuracy. AI has been an important indicator of a country's growth with respect to multi-dimensional domains such as decision-making, problem solving and data analysis. In modern economics AI has become an important factor for economic growth and sustainable development. The implication of such technologies highly impacts societies' economically. Inequality in terms of Income and Wealth is the biggest cause where developing countries struggle. Economic inequality refers to the unequal distribution of income, wealth and economic opportunities among individuals or groups within society. According to Manas Dasgupta there are mainly three types of economic inequality- a) Income Inequality b) Pay Inequality c) Wealth Inequality. Piketty (2014) points out that 'inherited wealth' is the problem area of India as it is a system where merit is not what is rewarded. Instead, it is the bloodline and family ties that matter. He calls it 'patrimonial capitalism' and it is something common in all countries all over the world. But in India, this patrimonial capitalism takes a giant leap. The significant difference between human

intelligence and automation creates an economic division as well. To understand and reflect upon the distribution of income, the Gini Coefficient is used as an economic perspective. A higher Gini coefficient indicates greater inequality while a lower value reflects more equal income distribution. It examines how technological advancements i.e. AI influences income distribution and inclusive economic growth. The study provides that various policy derived ways can be used to minimize the gap between developed and developing countries.

2. Literature Review

1) IMF Working paper – ‘Technological Progress, Artificial Intelligence and Inclusive Growth’ by Anton Korinek, Martin Schindler, and Joseph E. Stiglitz. Author highlights that AI driven markets show ‘winner-takes-all’ approach. Concentration of wealth and power is highly observed because of the AI-automation. It also highlighted that the government intervention and policy making can help reduce the inequality and to achieve sustainable development goal 10.

2) The IMF (2024) analyzed global labor market where the study founded that Wage Polarization is the biggest problem caused due to AI and its impact on low-skilled labors.

3) World Bank (2023) – World bank found that the role of AI in improving the status of sustainable economic development is high. Especially when AI improves access to financial services, employment opportunities, and productivity-enhancing tools.

4) Organization for Economic co-operation and development (OECD,2022) – The OECD (2022) reported that Infrastructural capability of a country largely decides whether AI will benefit the AI-driven economic gains. Strong digital infrastructure in a country supports the educational systems which in turn helps to reduce inequality of every level.

5) United Nations (2024) AI and Sustainable Development

UN (2024) emphasized that the developing economies are highly prone to income inequalities as they lack access to education, healthcare and financial systems. The study suggests that AI can help to access these factors which in turn will help the economy grow and foster. To achieve the goals of SDG 10 artificial intelligence can create a pathway.

6) World Economic Forum (2023) – AI and Economic Opportunity WEF (2023) reported that the Digital Inclusion caused by AI is possible due to its capacity to create new employment opportunities and improve productivity. But the scenario in developing economies is different. If the countries lack infrastructure to favor AI, then the even distribution of the benefits of AI is not possible.

3. Objectives and Hypothesis

Research Objectives- The primary objective of this study is to examine the economic impact of Artificial Intelligence on income inequality and inclusive economic growth in the context of Sustainable Development Goal 10 (Reduced Inequalities).

4. Research Hypothesis

H1- Artificial Intelligence significantly impacts Income Inequality.

H2- Strong Digital Infrastructure in a country enhances inclusive AI-driven growth.

H3- To reduce the inequality and enhance the use of AI for inclusive growth, government intervention and skill development policies are important.

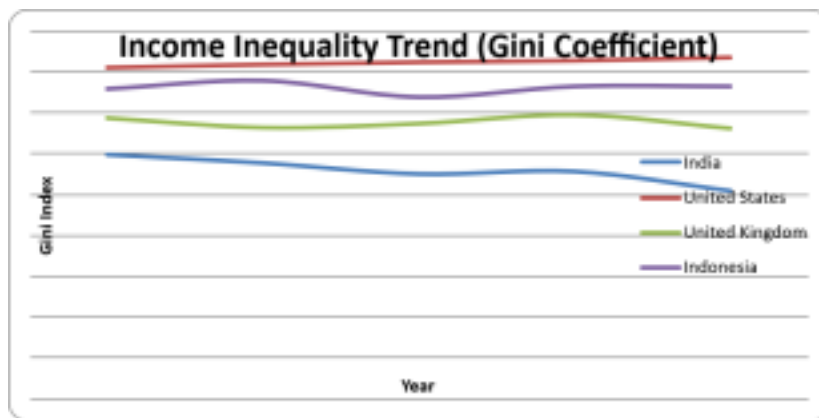
5. Research Methodology

This study is based on descriptive and analytical research design using secondary data. This data is collected from global institutions focusing on the statistical databases. This data allows analysis of AI adoption and its impact on income inequality throughout various countries. To enhance the academic research, institutions such as International Monetary Fund (IMF), World Bank (WB), Organisation for Economic Co-operation and Development (OECD), United Nations (UN) and World Economic Forum (WEF). To measure and compare the inequality levels of various countries the credibility and availability of consistent economic data is very important. Gini Coefficient is used by all international organizations. It is one of the most important indicators which has helped to focus on the study of four countries that are India, United States, United Kingdom and Indonesia. The timeframe is important to observe the trend of income inequality over a decade i.e. time period from 2010

to 2021. Ranging from 0 to 1 where 0 means perfect income equality and 1 means maximum inequality. Providing quantitative measure of income distribution, it truly helps to evaluate the economic impact of AI on Inclusive economic growth and sustainable development goal-10

6. Data Analysis and Interpretation

Year	India	United States	United Kingdom	Indonesia
2010	29.8	40.5	34.4	37.9
2012	28.8	40.9	33.2	38.9
2015	27.5	41.2	33.7	36.9
2018	27.8	41.4	34.8	38.2
2021	25.5	41.8	33.1	38.2



The Gini coefficient is the best indicator of inequality variation across various countries. Countries where there is a stronger foundation of digital infrastructure and technological access show relatively stable inequality levels. This data suggests that to attain SDG 10 the right use and application of AI with respect to technological access is important which in turn influences income distribution. Also, access to such high technologies is possible if the countries are maintaining such infrastructure on priority. Across all these countries the Gini Coefficient shows variations in income inequality. During the period of 2010 to 2021, the data examines how economic structures, policy frameworks and technology influences inequality. About India, it is shown that the Gini coefficient gradually declines from 29.8 in 2010 to 25.5 in 2021. The improved income distribution over the period and the expansion of digital infrastructure and financial inclusion are the possible reasons for the change. The inequality in India may have reduced due to digital identity systems, direct benefit transfers and digital payment platforms. But in contrast, the USA shows higher inequality ranging from 40.5 in 2010 to 41.8 in 2021. The concentration of Wealth is the biggest reason that the USA despite being a global leader has high inequality levels. In the UK it is seen that the technological development is still high, welfare programs and redistributive policies help moderate income disparities. The integration of technology and government policies is important. Without it, inequality cannot be controlled.

7. Role of Various Government policies for AI’s Inclusive access and its impact on SDG 10

1. NITI Aayog – AI for all Initiative

a. NITI Aayog has been successful in implementing sustainable economic framework for achieving SDG 10 (Reduced Inequality)

2. Digital India Program

a. This program has been successful in providing digital access and government services to all citizens this has promoted financial inclusion in Indian economy. 3. Ayushman Bharat- AI in health care

a. This scheme has provided free health care to all the economically weaker sections, to improve the living standards it has play a vital role.

4. Aadhar enabled welfare distribution

a. It has provided unique digital identity to all Indian citizens to efficiently implement the welfare schemes this helps to reduce frauds and fake identities.

8. Role of Multiple Factors in Influencing Inequality-

Artificial Intelligence and Technological advancement plays great role in determining the economic framework of a country. The relationship between AI adoption and Inequality is very complex, to understand them better other factors also influence a lot. The factors like Government policies and regulatory frameworks, education system, globalisation and international trade, digital infrastructure and access to technology are important to decide the economic framework of a country.

9. Potential Risks of Artificial Intelligence in relation to Inequality-

Although AI helps to create an upward graph it also has some serious concerns. Job displacement due to automation, growing skill gap in labor market, digital divide, concentration of technological power among large technological companies, algorithmic bias and fairness. A higher risk of AI creating such situation should be dealt with in detail.

9. AI Applications

1. BHASHINI (National language translation mission)

This AI portal has removed language barriers.

2. European Union- AI for social good

For the betterment of society and the purpose of social inclusion it has proved a point. 3. The Government of Canada and Singapore model- AI in both of these governments has proved that AI can create equal and better work conditions for the economically weaker section of people.

10. Conclusion

AI enhances efficiency in the economy and it makes the economic situation better. Financial inclusion, high production and output dynamics, high living standards are the most important attributes AI can provide. The diversity of AI to improve efficiency replaces routine jobs, creating differences in income between skilled and unskilled workers. The gap between developed and developing countries is widened due to these aspects of AI. Thus, AI has both positive and negative impacts on income inequality. Improved access to economic opportunities and financial services can help for the betterment of Inclusive society. AI is a double-edged sword. If we know the proper governmental policies for its inclusive access then AI can improve education, healthcare and all other public facilities for a better nation and a better world.

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