Applications of Artificial Intelligence in Different Areas of Economics Subject

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ABSTRACT:
This article examines the concepts of artificial intelligence (AI) and economics, highlighting their intersection and analyzing various studies that investigate AI's influence on economic dynamics. We assess the existing literature regarding the implications of AI adoption and the current regulatory measures associated with this technology. Economic research addresses aspects such as growth, employment, productivity, and income inequality, while regulatory discussions encompass market competition, data privacy, copyright issues, national security, ethical considerations, and financial stability. Our findings indicate that: (i) theoretical studies generally concur that AI will impact a majority of jobs and reshape growth patterns, yet empirical evidence regarding its effects on employment and productivity remains ambiguous; (ii) regulatory efforts have largely concentrated on areas not thoroughly examined in academic research; (iii) there is significant variation in regulatory frameworks across countries, each facing complex trade-offs. This paper provides insights into the applications, outcomes, and recommendations regarding the transformative role of artificial intelligence in various economic domains.
KEYWORDS: *Artificial Intelligence, AI, AI and economics, Automation, AI and the Labour Market*

I. INTRODUCTION

Artificial intelligence is playing an increasingly crucial role in our society and economy, impacting the world in various ways. The competition to harness its advantages is intense on a global scale, with the US and Asia leading the way. Many view AI as a catalyst for productivity and economic expansion, enhancing operational efficiency and refining decision-making through data analysis. Moreover, it has the potential to stimulate the development of innovative products, services, markets, and industries, driving consumer demand and creating new revenue streams. However, AI could also disrupt the economy and society significantly. Concerns have been raised about the emergence of dominant corporations that concentrate wealth and knowledge, potentially harming the broader economy. It may also exacerbate the gap between developed and developing nations, emphasizing the demand for specific skills while rendering others obsolete, impacting the labor market profoundly. Experts caution that AI could exacerbate inequality, depress wages, and reduce the tax base. While these risks are valid, there is no consensus on the extent to which they will materialize. With carefully crafted policies, the negative impacts of AI can be mitigated while fostering its development. The EU has the potential to enhance its global competitiveness and steer AI towards benefiting its economy and citizens. To achieve this, a unified strategy must be established to leverage the EU's strengths and optimize the utilization of Member States' resources effectively. The unstoppable advancement of technology has been a consistent trend for numerous years, and currently, the emergence of Artificial Intelligence (AI) is becoming increasingly popular in different academic disciplines. Nations and organizations are actively investigating the uses of AI in sectors like defense, finance, and the economy. A vital component of economic theories and policy formulation is reducing the uncertainties linked with policy choices.

II. DEFINITION OF ARTIFICIAL INTELLIGENCE (AI)

Artificial Intelligence refers to machines that can replicate human-like thinking, carrying out tasks that typically require human intelligence. By handling vast amounts of data and performing analyses according to set criteria, AI imitates human abilities like speech recognition, decision-making, judgment, and pattern recognition. The various methods utilized by AI are leading to a significant transformation in all technology sectors.

III. REVIEW OF LITERATURE

The sharing economy involves the utilization of underutilized assets, such as spaces, skills, and equipment, for either monetary or non-monetary gain. Various sharing business models have emerged across different economic sectors, including goods (e.g., Rent the Runway), professional services (e.g., Elance), transportation (e.g., Uber), accommodation (Airbnb), and finance (e.g., Kickstarter). This type of business

intelligence focuses on the temporary exchange of underutilized assets to enhance resource utilization efficiency. Platforms within the sharing economy strive to enhance customer experience to attract more participants and increase profits. Some platforms have integrated artificial intelligence to gain a competitive edge. The following section explores the application of artificial intelligence in the sharing economy. Artificial intelligence (AI) was initially introduced in 1956 during a meeting at Dartmouth College where the term was coined. Over the years, AI techniques have evolved to offer alternative solutions to traditional methods and have been utilized to address complex practical problems across various industries. In the banking sector, for instance, AI algorithms can be employed to identify money laundering patterns and predict financial market behavior.

IV. PURPOSE OF THE STUDY

Economics is a well-known poison and at present thinkers in this field are applying artificial intelligence to various fields of economics, striving for economic interest and this article covers special applications of artificial intelligence.

V. OBJECTIVES

The primary aim of the research is to assess the financial performance of leading automobile companies in India. The study will also focus on the following specific objectives:

1. To know the meaning Artificial Intelligence and its Applications in Economics.
2. To Know the results and recommendations of Artificial Intelligence in economics subject.
3. To find out the Revolutionize of AI in difference areas of Economics

VI. METHODOLOGY

This research adopted a fully descriptive approach, as it is particularly well-suited for exploring the role of artificial intelligence applications in the field of economics. This methodology extends beyond mere data collection and organization; it encompasses analysis and the establishment of connections among various applications. This process ultimately leads to conclusions that enhance our understanding of the current landscape. Through this approach, it becomes possible to identify and interpret the factors and relationships pertinent to the research problem, thereby formulating a forward-looking perspective that can enrich the field of economics. This, in turn, enhances the effectiveness of artificial intelligence and its capacity to drive economic growth amid the changes of contemporary life.

VII. APPLICATIONS OF ECONOMICS AND ARTIFICIAL INTELLIGENCE (AI)

a) **AI and the Labour Market:** The International Monetary Fund's report, "Gen-AI: Artificial Intelligence and the Future of Work," evaluates the worldwide implications of AI on employment, both at national and regional levels. It highlights AI's capacity to transform the global economy, especially within the labor market. Approximately 40 percent of jobs worldwide are susceptible to AI advancements, with developed nations facing both heightened risks and greater opportunities compared to emerging and developing economies. The concentration of cognitive-task-oriented roles in advanced economies places around 60 percent of their workforce at risk. Furthermore, the report anticipates that AI will have a significant impact on income and wealth disparities, predicting that its integration will boost overall income through enhanced productivity, leading to increased economic growth and higher earnings.

b) **AI and Economic Forecasting:** Economists have historically faced challenges in making accurate economic forecasts, but AI systems, which exhibit advanced capabilities in learning, reasoning, and problem-solving, present a viable solution. An IMF study by Prakash Loungani points out the past difficulties economists have encountered in predicting recessions, yet it posits that AI could greatly improve forecasting precision. The use of AI in predictive analysis may address existing obstacles in economic forecasting, allowing economists to deliver more accurate predictions and evaluate their implications for the economy.

c) **AI in the Financial Industry:** In the financial sector, practices such as algorithmic trading, black-box trading, and automated trading have gained prominence. These approaches utilize AI to analyze market trends and investment tactics. AI's influence in the financial markets extends to making informed decisions based on market fluctuations, central bank interest rate strategies, and forecasting systemic risks, thereby playing a crucial role in preventing crises such as subprime and financial collapses.

d) **AI to Prevent Loan Default**: AI plays a key role in the prevention of loan defaults by analyzing vast amounts of data on defaulters from various banks. Its implementation in the financial sector enhances crisis prevention and improves risk management.

e) **AI for Economic Research**: Economic research involves the study of economic behavior and the analysis of data on economic activities. AI has revolutionized this field by enabling researchers to quickly process large amounts of data and provide accurate predictions and policy recommendations efficiently.

f) AI in General Equilibrium: General Equilibrium, a fundamental concept in economics, has a significant impact on policy-making. AI accelerates the analysis of General Equilibrium by processing and examining data from different sectors faster and more precisely than traditional methods.

g) AI and Socio-Economical Issues: AI's capability to analyze big data allows for more precise predictions of socio-economic issues. It can forecast inflation, unemployment rates, the movement of migrant labor forces, interest losses from loan defaulters, income losses for farmers, and identify beneficiaries of government programs, among other uses.

VIII. REVOLUTIONIZE OF AI IN DIFFERENCE AREAS OF ECONOMICS

AI has the capacity to transform various aspects of economics, such as decision-making, prediction, and improvement. Below are some instances of AI applications in the field of economics.

1. AI has the capability to analyze extensive economic data and make predictions about future economic conditions, which can be valuable for policymakers, businesses, and individuals in making well-informed decisions.
2. AI is capable of making forecasts for economic indicators like GDP, inflation, and employment, providing valuable assistance to policymakers and businesses in planning for future economic conditions.
3. AI has the ability to optimize economic systems such as supply chains and financial markets, enabling companies to enhance their operations and decision-making by analyzing data and making predictions.
4. AI can be utilized to analyze large volumes of data on human behavior, such as consumer preferences, to gain insights into individual decision-making and market dynamics.
5. AI can also be employed for predictive maintenance, accurately predicting equipment failure and scheduling maintenance to minimize downtime and costs.
6. AI is used for natural language processing to analyze extensive economic text data, extracting insights and identifying trends from sources like news articles, financial reports, and government documents.
7. AI can be utilized for sentiment analysis, providing the capability to analyze public or investor sentiment on specific industries, stocks, or the economy.

In summary, artificial intelligence holds significant promise for economists and policymakers by enhancing their comprehension of economic systems and facilitating more informed decision-making. Furthermore, AI can assist both businesses and individuals in streamlining their operations and improving their decision-making processes.

IX. RESULTS

After examining prior research, the researcher determined that there is a set of findings regarding the influence of AI applications on economic development, which are outlined as follows:

1. To reach sustainable development goals, it is essential to broaden the scope of artificial intelligence applications and the economic benefits it brings. Artificial intelligence has the potential to enhance education.
2. Artificial intelligence signifies a significant advancement in both theoretical and applied sciences. It has the capability to replicate human cognitive functions in various processes such as perception, logical reasoning, learning, and skill acquisition through diverse technologies and innovative programs collectively known as artificial intelligence systems.

X. CONCLUSION

Although artificial intelligence holds significant promise, it is not free from biases that reflect those found in human cognition. These biases in AI arise from the data, information, and techniques employed in its processing and analysis. While it is feasible to manage these biases, achieving total elimination is a complex task. AI is applied across various sectors, and research into its economic applications is still in the early phases. Ideally, the societal effects of AI should be more advantageous than harmful. By aligning research agendas with sound policy decisions, we can promote inclusive and sustainable economic development.

XI. RECOMMENDATIONS

✓ Establishing a government entity named the Ministry of Artificial Intelligence Technology dedicated to digital transformation and artificial intelligence to oversee this area.
✓ 2. Introducing a specialized curriculum on artificial intelligence in schools and universities to prepare exceptional students for university admission over the next decade, focusing on sensory perception and practical skills.
✓ Transforming the future of higher education through the integration of smart technology, innovation, and advanced research.

- ✓ 4. Collaborative initiatives involving government, educational, and media organizations to enhance public understanding of fundamental concepts in this field, fostering digitally literate citizens capable of engaging with such technologies.
- ✓ 5. Founding a university distinguished by rigorous standards in expertise, scientific knowledge, and intellectual discipline, with a mission to graduate exceptional students from across the Islamic world, dedicated to addressing the challenges facing the Muslim community as a whole.

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