



ROLE OF ARTIFICIAL INTELLIGENCE IN MODELLING THE ECONOMIC GROWTH AND WELFARE

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ABSTRACT

Over the years, rapid advancements have been evident in almost every hook and corner of the world. This growth and development are achieved in every terrain due to the exploration and innovation in artificial intelligence. The development effects of AI have waved path for transitional dynamics which have profound implications for society as a whole as well as on the economy. The advancements in AI can influence a wide range of characteristics directly. These innovations have a significant impact on employment, productivity and competition. Advancements in AI have hiked the efficiency of household utility, which has boosted the productivity of goods. Accumulation of AI in business activities would attempt to replace the human workforce. The research paper attempts to establish a relationship between the economic development of the nation and society as a whole. The research is exploratory hence data is collected through primary and secondary sources both. The data collection method used is an electronic questionnaire and interviews with 842 respondents from different areas like production, promotion and distribution. An attempt is made to find the potential of AI to introduce reforms in the innovation processes which would eventually reflect profound consequences over the long run. These transformations in creativity and innovation processes would dominate the direct effect.

KEYWORDS: Growth, Development, Artificial Intelligence, Dynamics.

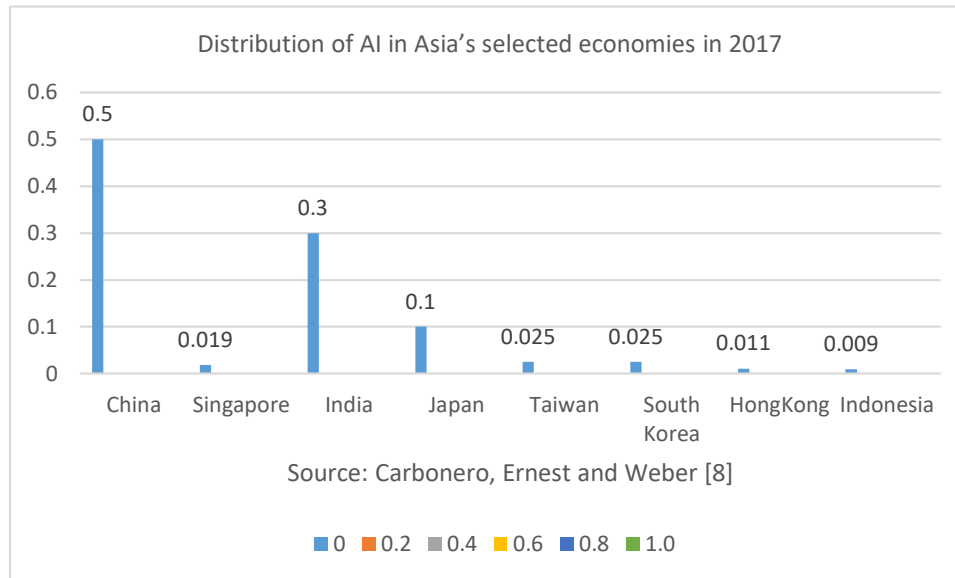
INTRODUCTION:

In this knowledgeable millennium, it has been observed that artificial intelligence has played a tremendous role in modelling almost every area of mankind by its advancements. Artificial intelligence has reflected transformation in human life making it easier. A few examples that show the implications of AI in various domains are, the automobile industry delivering driverless cars, newsfeeds being delivered through media and communication domain, customers buying and consumption behaviour being influenced by modern business operations, using digital device functions in the telecommunication domain, etc. The majority of the sectors have incorporated the usage of AI to improve the efficiency of their business operations. Sectors like education, healthcare, transportation, retailing, etc. have now adopted well-established capabilities in AI programs and procedures in-house. AI advancements have also imposed danger of disruption due to continuous automation and upgradation.

Rapid advancement in AI leads to innovation in technology and automation which improves the productivity of the organizations. AI shows increased output in leaps and bounds, reducing the cost of production

drastically in a limited period. Accounting firms that initially took a lot of time in operations are now saving time in performing accounting tasks. Regardless of every country's demographic, political structure and socioeconomic grounds, AI has shown its implication in up-holding every economy's economic growth and welfare. The impact of AI differs from country to country and from one area to other areas.

Distribution of AI in Asia's Economies



The above shows the distribution of preparedness among selected Asia's economies.

It is to be noted that preparedness of the economies refers to the potential of the country to exploit and explore the available resources, and upcoming opportunities available in the country using AI. However, It is to be noticed that economies now focus on deep learning and machine learning.

Indian economy addresses a high level of preparedness to absorb and adopt the implications if AI is followed by China. Many world economies show resilience in adopting the usage of AI in their business operations. A few countries following AI advancements after China and India are Japan, Singapore, Taiwan and South Korea. Whereas, the other nations reflect minimal acceptance towards AI institutions.

Review of Literature

1. IM Cockburn, R Henderson, S Stern (2018), examined the rapid advancement in various terrains due to artificial intelligence. The main objective of the study was to highlight the impact of AI on society as a whole. The findings pivoted the lens on the potential of AI to bring innovations. These innovations would influence various areas related to goods and services leading to economic growth.

2. AB Bonab, I Rudko, and F Bellini (2021), aimed to analyze the potential of artificial intelligence in modelling socio-economic patterns with the help of technology. The study focused on many research papers, which focused on the negative aspects of intelligent machines replacing. The paper states the reformation produced in academic literature due to artificial intelligence. It has also made a gap for further exploratory research stating that artificial intelligence would become the upgraded technology which would enable transformation in technical field.

3. M Haseeb, LWW Mihardjo, AR Gill (2019), the goal of the study was to ascertain how artificial intelligence (AI) had impacted the Asia-Pacific region's economic conditions. The primary emphasis requirement to gauge AI's effect on corporate operational efficiency. The macroeconomic data was gathered from sources like international organizations. Around 19 economic variables were considered for the analysis of the economic impact of AI. The findings pivoted the lens to highlight that China crowned and ruled in the field of AI. It was found that around 8 economies reflected a range of AI-related economic outcomes.

4. N Chen, L Christensen, K Gallagher, R Mate (2016), approximated the growth and advancements projected for the global economies due to the adoption of AI over a decade. The study aimed to analyse the impact of AI, within a wide range of applications. Artificial Intelligence was considered as a procedural gadget which played the role of a deemed intelligent. AI was concluded as a technology which was assumed to compete with the performance of humans. AI appeared to be performing human skills like learning, converting complex content to simple, drawing conclusions.

5. CH Lu (2021), Focusing on the self-accumulation ability and the nonrival characteristic of artificial intelligence (AI), this paper develops a three-sector endogenous growth model and investigates the impact of the development of AI along the transitional dynamics path and the balanced growth path. The development of AI can increase economic growth along the transitional dynamics path, and can increase household short-run utility if an increase in the accumulation of AI is due to the rising productivity in the goods or AI sector, but can be detrimental to household short-run utility if an increase in the accumulation of AI is because firms use more AI to replace human labor. In addition, the development of AI is not necessarily beneficial to household welfare in the long run. The main results are unaffected when considering the case where AI can improve the accumulation of human capital, the traditional research and development model, and different kinds of physical capital.

6. E Mogaji, TO Soetan, TA Kieu (2020), The study was undertaken to examine the relationship between variables like AI, financial services, and digital marketing concerning customers, highlighting implications in data collection, processing of data, and delivering information. The paper also explored the significance of human relations for achieving maximum customer satisfaction, and customer betrothal concerning financial service providers. The research delivered a model framework to financial service delivery agents, marketers, policymakers, academics, etc to assist them in understanding the criteria while facing vulnerable customers.

OBJECTIVES OF THE RESEARCH:

1. To highlight the impact of AI on the economic growth of the nation.
2. To measure the potential of AI in influencing economic growth.

HYPOTHESIS:

H₁: There is a strong relationship between the advancements in AI and the economic growth of the nation.

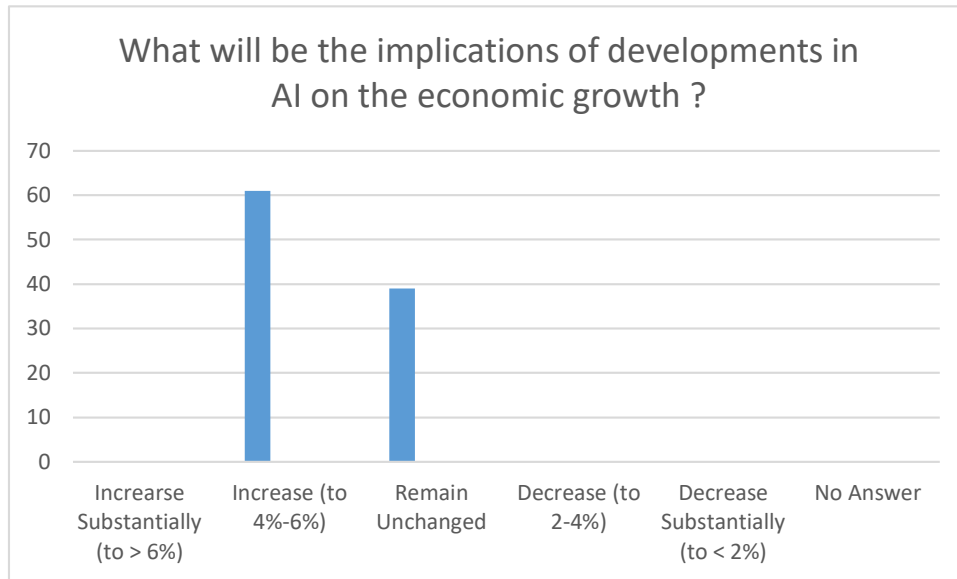
DATA ANALYSIS

The research paper is exploratory in nature hence data is collected through both the sources namely, primary and secondary. Data is collected through face to face or telephonic interviews, electronic questionnaire through google forms as per the availability and convenience of the respondents. The respondents were ensured that the data collected was purely for the purpose of study and would be kept confidential.

The primary data is collected from 842 respondents belonging to various fields like production, promotion, distribution, etc. to gauge the impact of artificial intelligence in wide range of variables.

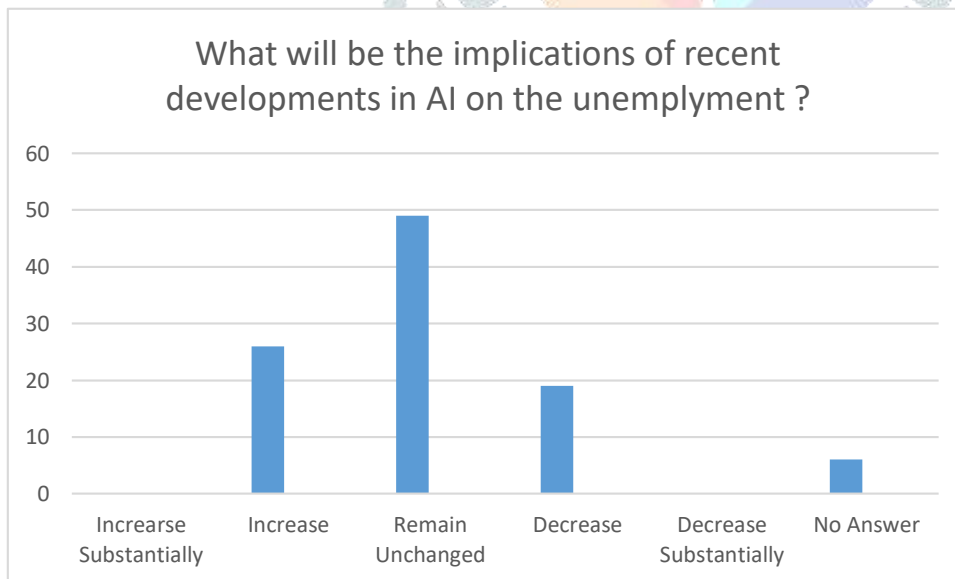
The secondary data was collected from already published sources like, newspapers, online sites, research journals, government records, etc.

Q1. What will be the implications of developments in AI on the economic growth of the nation across the decade?



Interpretation: From the above chart it is evident more that 60% of the respondents, 514 believe that AI would boost the economic growth of the nation in the upcoming decades up to 4% to 6% per annum. The remaining panel of respondents feels that the advancements in AI have no significant impact on the global growth.

2.What will be the implications of recent developments in artificial intelligence on the unemployment across the decade?



Interpretation: From the above chart it is evident that majority of the respondents 413 (49%) believe that the developments in AI would not affect the employment rates across the next decade. 26% of the respondents, 219 predetermine that advancement in AI would adversely impact the rates of labour. 159 respondents believe that that the labour rates would remain unchanged with the reforms in AI throughout the decade.

Hypothesis Testing

The study has proved that there is a direct relationship between AI and the economic welfare of the nation. Without use of AI in all the sectors it would not be possible to provide quality goods and services across the

globe. AI technology and innovation helps to analyze and satisfy the need and preferences of large target audience.

CONCLUSION

The study reveals that India has a favourable and unique opportunity to solve major issues prevailing in multiple areas by applying technology. AI application can solve almost various problems pertaining in every sector efficiently and effectively, eg, shortage of facilities in the healthcare sector, and education sector providing poor quality problems, etc. can be resolved by delivering improved and timely healthcare services, best quality education using AI applications through improved technology and innovation to a larger extent. India has an unparalleled advantage of catering for the needs of a larger target audience by adopting artificial intelligence technology.

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