

The Effects of ChatGPT on Economic Development

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Abstract. ChatGPT has been the latest trend of technology which generated much debate within the society as it is impactful on the life of human beings. It integrated Artificial Intelligence and natural language processing technology, and have the ability to replace the work of human beings. As it works based on huge databased, ChatGPT is also knowledgeable in handling questions of different industries. In this paper, the effects of ChatGPT on economic development is future discussed. ChatGPT can influence the economic as it is able to bring impacts on labor market, education, technology integration, business decision and political decision. The impacts of ChatGPT can be argued to bring to both positive and negative impacts. The current characteristics of ChatGPT includes technical and data limitation, improve efficiency in multiple fields and bring to potential ethical and legal issues. The paper will further argue that ChatGPT can be integrated into the field of medical, education, and sales and marketing. By integrating ChatGPT into these field, it can increase the business model of ChatGPT, while also beneficial for the respective fields which brings to overall economical development of the society.

Keywords: ChatGPT; Artificial Intelligent; Economical Impacts.

1. Introduction

1.1. Background

ChatGPT is the latest technology that inclusive of the Artificial Intelligence (AI) and natural language processing, which developed by OpenAI. The introduction of ChatGPT into the market has captured large attention because the technology itself can be applicable in different industries to aid businesses and individuals in increasing their efficiency to complete tasks and jobs. The ChatGPT also allows accessibility for the public, in which offered to the public with free accounts and plus accounts. As it is accessible freely, it increased the accessibility and captured the attention of the public to try the services. In terms of economic development, ChatGPT has a large influence on the economics of a country from both advantages and disadvantages perspective. The advantages include increasing of efficiency and opportunities, that contribute to the growth in economy. Meanwhile, ChatGPT can also associate with disadvantage contribution to the economic development by increase of unemployment rate due to replacement of jobs by ChatGPT. This can bring a burned to the economy of a country because the government needs to interfere in reducing the unemployment rate, while the residents need to suffer from lack of income. As AI is the future trend and attention of the society, it can be important to understand how ChatGPT can contribute to economic development, which is further researched in this paper.

1.2. Related research

ChatGPT caused the development of technology in terms of AI which further affect the labor market because some occupations can be replaced by ChatGPT. This caused disruption in the labor market, which further impact on the economic development because unemployment rate increases within the society and increase the income inequality gap. Employees that could not follow up the market trend and learn about ChatGPT can highly be eliminated [1]. Moreover, ChatGPT can be helpful in the field of processing natural language, creating of contents and enhancing customer services. The implementation of ChatGPT can bring to advantage of scalability, which allows large number of tasks can be performed in small amount of time. This can be beneficial for businesses to increase profitability and efficiency, while reduce the reliance of human intervention [2]. As ChatGPT

can cause job disruption, the responsibility of unemployment is fall under the governments and organizations. It was found that 71.3% of the respondents think that governments and organizations can be responsible for unemployment. This means that the governments should consider unemployment benefits and other social welfares which can be impacting on the country's economic expenses [3].

Although ChatGPT is impactful on the employees of both mental and physical as their jobs can be easily replaced by the technology, the ChatGPT also offers new positions and opportunities of jobs to the market. It is estimated that 85 million of the position in the employment industry can be replaced with technology, while it also created 97 million of new jobs by 2025. It is believed to support the new economy with such transformation [4]. Meanwhile, it has been described as "talking more like human beings", which the technology itself can replicate the mindset and work of human beings. The reliance of AI can be associate with ethical consideration of potential legal risks, such as data leakage, dispute of authorship and data reliability dispute. This can be harmful for the economy development of a country when they are bound to data leakage risk when using ChatGPT [5]. Furthermore, ChatGPT is also commonly used in education. By using ChatGPT, one can access to personalized resources of education and able to learn specific skills. It is different from the traditional style of teaching process as ChatGPT's education is more student-centered. Students will be accessible to more knowledges, which believed to improve the economic development of the future [6].

It can also reduce the education gap especially in the developing countries. This is because developing countries can be associate with limited education resources, which ChatGPT can help in tackling this issue to make education more accessible. ChatGPT also allows cost effective in terms of education in which the poor can access to it easily with internet. Education can be important to reduce the knowledge gap and income inequality gap [7]. ChatGPT has been allowing the collaboration of AI software, such as MidJourney and DeepBrain. The collaboration of generative AI can help in increasing the technologies and efficiency of people at work. This further contribute to the growth in global economic development [8].

Meanwhile, ChatGPT is inclusive of large data collection, in which the analyzation of data can be bias. It is found that ChatGPT is biased against the political conservatives. As the economical of a country can be influenced by political situation, if the ChatGPT is implemented as reference for political purpose, it can influence on the economic decisions too, which impact on the economic development [9]. Additionally, ChatGPT can be helpful for businesses when it comes to expansion to international market, as it increases the efficiency in communication and able to do research conduct with the aid of the technology. ChatGPT which allows better international communication can highly increase the performance and productivity of an organization. It can contribute to trade and economic development as it helped to achieve economic expansion [10].

1.3. Objective

The objective of this paper is to discover the effects of ChatGPT on economical development. It is important to access on the current impacts of ChatGPT in order to provide further recommendations on the business model, with the purpose of increasing the economical impacts and brings to positive development. It was found that ChatGPT can be associate with both positive and negative impacts. This can be understandable as ChatGPT is still new in the market, while it can be important to reduce the negativity to bring to more positive development economically. Hence, this paper aims to discuss and identify improvement on business models of ChatGPT to bring to more positive economical development.

2. Current characteristics of chatgpt

2.1. Technical and Data Limitation

The current characteristic of ChatGPT is that it is created based on the technology of AI and natural language processing in which it will generate to answer the tasks according to the technology. According to Sallam, ChatGPT needs to be trained in order to be more capable in solving tasks. For example, the AI language model is trained with large datasets which allow the current ChatGPT to generate responses which are human-like. As the datasets are huge enough, this allowed ChatGPT to solve tasks which human could not solve too, in which brings to the situation where some jobs can be replaced with ChatGPT and increased the unemployment rate. In fact, it is argued that ChatGPT can be associate with inaccuracy too. According to Sallam (2023), the inaccuracy risk of information was recorded with 33.3% when it comes to using ChatGPT in solving tasks. This further showed that ChatGPT is not reliable all the time [11].

On the other hand, ChatGPT is also associate with the limitation of real-time information access. As the AI technology works in which it is trained accordingly, it is needed for the development team of ChatGPT in updating the data and information. According to Arif et al., the current ChatGPT is only able to access to the available information until 2021 only. The ChatGPT is also limited in accessing main databases platforms such as PubMed, which reduced the credibility of the answers of ChatGPT. The characteristic of ChatGPT in accessing real-time information makes the users of ChatGPT need to work on their own when it comes to the access of real-time information. When it comes to the topic which related to latest news and scenario, ChatGPT can be fail to provide answers. However, it is believed that when technology improved, ChatGPT can slowly improved to able in accessing and analyzing real-time data in the future [13].

2.2. Improving efficiency in multiple fields

ChatGPT can also allow the integration which increase the efficiency of work, by integrating it with of third-party application (Biswas, 2023). According to Biswas (2023), ChatGPT can be integrated with social media in order to increase the efficiency of work of the businesses. This can be application as the integration of ChatGPT can allow the automation of customer service, in which the customers' messages can be respond instantly and it is human-like response which the potential customers will think that the messages are created by human. Furthermore, the integration can also allow content generation where the contents of the social media are being generated with ChatGPT, and this can replace the work of a copywriter. In fact, it is argued that ChatGPT can perform better than human beings when it comes to copywriting as it has large sets of data and language information, that helped in create innovative and creative copywriting of contents for social media [12].

2.3. Potential legal and ethical issues

Although ChatGPT might not be reliable all the time, it could not deny that ChatGPT is strong enough and it is argued to be smarter than human beings (Geerling et al., 2023). This is because the large set of databases which the technology included can allow ChatGPT to process faster, and smarter as compared to a human. ChatGPT has access to all the information online, while it is trained by different human beings that contributed to ChatGPT to be smarter than human. In fact, it has contributed to the efficiency in education because ChatGPT is knowledgeable and able to process questions of education. This has contributed to the issue of ethical consideration when it comes to education. According to Geerling et al. (2023), students can be associate with issue of plagiarism as they rely on ChatGPT in answering their tasks and questions in school. Although it was found that the accuracy rate of ChatGPT is not fully correct, the research shown that ChatGPT is able to answer 86.7% of the microeconomics questions correctly (Geerling et al., 2023). As compared to learning on own, students might opt for ChatGPT as the accuracy rate is not low, while they are able to pass their exams. This can contribute to issue of plagiarism when it comes to education, while students do not achieve the aim of learning by going to school and receiving education [14].

Considering on ethical perspective, the usage of ChatGPT are often argued to associate with ethical consideration. Although ChatGPT will refuse to answers on questions which related to moral issue, such as gamble, it was found that it is able to avoid the detection of system by changing the method of asking questions to ChatGPT. For example, when it comes to gamble, it is able to ask ChatGPT by implementing the asymmetric probabilities in counting the gambling winning rate, which helped to maximize the gain (Tang & Kejriwal, 2023). This further means that human being could make use of ChatGPT in carrying out unethical activities, by changing their methods of asking questions with ChatGPT [15].

3. Business model recommendations

3.1. Medical Usage

ChatGPT can be implemented on the industry of medical. According to Biswas, ChatGPT can help in aiding public health. As the technology is able to generate human-like response and have large datasets, it is able to analyze on the health issues, diagnose the patient, while also provide treatment advises for the patient. According to Vogenberg and Santilli, the healthcare seeking behaviors of the millennials have changed to seek for healthcare virtually. This is because accessing of healthcare virtually can help in saving costs, time and accessibility. The accessibility of healthcare virtually can also increase the healthcare seeking behavior of individual, which further help in ensuring a better health condition of an individual. This has created the market needs of virtual healthcare access, in which the integration of ChatGPT can brings to AI doctors that believe to bring to economical development for the medical industry [16,17].

Currently, China has implemented the technology of ChatGPT by introducing the MedGPT. Considering the fact that MedGPT is still new in the market, the result of 7.2 out of 10 for MedGPT shown that the technology can have a great contribution on medical field, when it comes to replacing of doctors. Furthermore, the technology is able to train and learn, which believed that the future of MedGPT will definitely perform better, and might score higher than human doctors in the future. However, MedGPT is also associated with ethical consideration in terms of usage because the implementation of ChatGPT into medical field needs to be cautious as it is related to health of human beings. Hence, the business model of ChatGPT for medical usage needs to consider ethically before implementing into society [18,19].

In terms of business model recommendation for medical usage, ChatGPT can not only help in replacing the human doctors, provide virtual healthcare services, while it can also help in optimizing the medical resources. From the perspective of demand, it is believed that medical industry requires this technology, while users can be charged according to per usage of diagnosing and brings to economic benefit for the industry.

3.2. Educational Purpose

Furthermore, as mentioned in the section of related research, ChatGPT has been aiding education as it has large databased which can help in solving questions of different industries. The technology which can be accessed online also helped the students from developing countries, or those that from rural areas in accessing to the educational resources with ChatGPT. However, as mentioned, ChatGPT is not fully correct all the time as the technology is still learning.

Currently, ChatGPT has been implementing into education and raised the discussion on the ethical issue of plagiarism. This created the new software of ZeroGPT, in which it will analyze on the plagiarism of the work of students and separate it into AI-generation and human-generation work. The subscription of ZeroGPT can brings to revenue for the company and it is the business model which generated from ChatGPT. This can be used as a reference that ChatGPT can be implacable in education which brings to business revenue for the company [20].

Besides ZeroGPT, it is also able to integrate business model of ChatGPT by into the educational perspective by providing educational and learning analytics. As mentioned, developing countries

which lack of educational resources require the technology of ChatGPT to fill up the educational gap. This further shows that there is a demand in the educational industry. However, those that lack of educational resources do not have a teacher to keep track on their learning progress, ChatGPT can be further integrated by generate learning analytics for the students in order to further fill up the educational resources gap of guidance. This can help in generating further revenue for the technology of ChatGPT because users can be charged with subscription fees that can be affordable for all. Education can be important and people can be willing to invest in it as it helps in personal development of the individual [21].

3.3. Sales and Marketing

Sales and marketing can be an important part in different businesses, no matter in which industry. This is because sales and marketing can bring to generation of revenue for the businesses in order for it to continue to run. With the integration of ChatGPT into sales and marketing, it can help in increasing the productivity and efficiency of the workloads. According to Chowdhury, the interface of AI can help in aiding the automation of customer interactors, while also capture on the needs and preferences of the customers. This can help in further marketing and targeting on the campaign of the customers based on their personal needs and preference. With the integration of ChatGPT, it is able to ensure more personalized support for the customers, and help in increasing the customers interactions and conversions when it comes to sales and marketing [22].

Currently, ChatGPT has been widely used in the copywriting for marketing campaigns. As mentioned in the section of improving efficiency in multiple fields, ChatGPT is able to come out with innovative copywriting because the technology has large set of databases to ensure that the copywriting can help in capturing the attention of the audiences. Furthermore, ChatGPT is also able to create human-like copywriting, that helps in maintaining the style of copywriting of the copywriter too that further help in achieving marketing purposes [23].

For the business model recommendation in sales and marketing, it is not only about copywriting only, which ChatGPT has been commonly implemented by the current marketers and copywriters. In fact, ChatGPT can brings to more economical benefits when it is being integrated to automate the process of sales and marketing for businesses. This service can help businesses on the conversion of sales especially online because the automation of the process can help in solving the issue of limited manpower for small and medium businesses, while also further capture on the needs and preferences of customers to increase the conversion rate. Considering the benefit and revenue that it can brings to businesses, the charges of subscription fees for the businesses on the solution with ChatGPT can be a small amount of expenses that increase the efficiency and growth of the respective businesses.

4. Conclusion

In conclusion, the effects of ChatGPT is not only limited on economical growth only, while also on different industries too. The integration of ChatGPT is able to allow the growth of different industries which helps in increasing the efficiency at work, while also allows the ChatGPT to learn and improve more to increase the performances of ChatGPT and contribution to these industries. From the perspective of economical development, the contribution of ChatGPT in improving different industries can brings to impacts on increasing the revenue generation of the industries, while bring to overall economical growth of the society. For medical industry, the integration of ChatGPT can slowly replace human doctors, while also aid the services and treatments of doctors by increasing the efficiency of them at work. For educational industry, ChatGPT can helps in allowing greater access of educational resources for those that have limitation in getting proper educational resources and guidance. Meanwhile, for sales and marketing, ChatGPT can helps in automation the process and capture the needs of customers more efficiency to increase the overall performances of businesses. The services of ChatGPT in aiding these industries can be charged with fees, in order for the technology to continue to run. As technology can be the current and future trend of the society, the

industries are needed with the technology of ChatGPT which further ensure that the business model of it can brings to revenue to the company.

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