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AI's Global Impact on Economy and Policy

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Abstract

In this article, we study the impact of Artificial Intelligence (AI) on the global economy. At first glance, the influence of AI on the global economy is apparent: revolutionizing productivity, redefining industries, and setting the stage for economic growth. Simultaneously, AI is permeating the realm of policymaking, providing unparalleled data-driven insights, and facilitating nimble, informed decisions. Looking deeper, we can see that these technologies guide regulatory frameworks, foster innovation, and contribute to comprehensive governance structures. In the backdrop of these changes, the future of the US dollar's hegemony is uncertain, given China's rapid rise and the divisive nature of American politics. Once unquestioned, the power of the US dollar faces some challenges to the changing dynamics of global finance. Forward world moves forward, nations must navigate this complex landscape, leveraging the transformative potential of AI, fostering cooperative relationships, and crafting policies that ensure economic stability and prosperity in a rapidly evolving global arena.

Keywords: Artificial Intelligence, Global Economy, US Dollar, Economic Policy, China's Rise, Gold Reserves, Currency Hegemony, Political Environment, Geopolitical Influence, Economic Shifts.

Introduction

Artificial Intelligence (AI) has emerged as a transformative force that, among other things, reshapes economies and influences policy decisions worldwide. As the global economic landscape is undergoing a seismic shift with China's rapid rise and its increasing trade and accumulating more gold reserves (not as a financial value supporting the currency, but rather as the usage of gold in the technology of enhancing computational machinery such as quantum computing), [6] and the BRICS nations are ready to develop a new global reserve currency, the power of the US dollar is facing some challenges.

In this article, we will explore the influence of AI systems on the global economy and the implications for policy, particularly in the context of the dollar's status as the world's primary reserve currency.

AI technologies have initiated a seismic shift in how the world conducts business, crafts policy, and secures its financial future. The profound effects of AI are evident in every facet of society, from manufacturing and healthcare to finance and governance. These far-reaching implications have the potential to shape economic growth, technological advancements, and geopolitical realignments on a global scale.

AI's footprint in shaping economic policy is unmistakable. Governments, central banks, and international organizations now rely heavily on AI-powered analytics to dissect economic trends, fathom intricate market dynamics, and make data-informed decisions. This data-driven approach has become the bedrock upon which fiscal and monetary policies are formulated and executed. See Figure-1. Which presents futuristic quantum computing in holographic concept driving omni-direction data through Internet of Things (IoT).

Figure 1: AI and Policymaking Cycle
(Source: www.wikipedia.org)

However, as AI insinuates itself deeper into policy and economic decision-making processes, another force has begun to stir the geopolitical cauldron - China. Its rapid and relentless rise has not only catapulted it to the rank of the world's second-largest economy but has also cast it as a central character in the drama of global financial markets.

China's economic ascent, with its insistent calls for the internationalization of the yuan and the expansion of its sphere of financial influence, is viewed by some as a significant threat to the global supremacy of the US dollar. Should more nations adopt the yuan for international transactions and investments, it could weaken the dollar's historical dominance in global trade and finance, possibly redefining the existing economic order.

AI Policy and U.S. National Strategies

Figure-2 represents, over the next several decades, artificial intelligence (AI) will likely have a significant impact on global competitiveness, offering early adopters a considerable tactical and financial edge. National governments, as well as regional and international organizations, have been rushing to implement AI-focused regulations in order to fully realize the technology's potential and address its ethical and societal ramifications.

Figure 2: AI Driven Technology National and Regional Strategies

(Courtesy of aiindex.stanford.edu)

Figure-2 is depicted to guide and foster the development of AI. Countries and regions worldwide are establishing strategies and initiatives to coordinate governmental and intergovernmental efforts. Since Canada published the world's first national AI strategy in 2017, more than 30 other countries and regions have published similar documents as of December 2020.

AI policy and U.S. national strategies revolve around the developing, reguling, and responsible use of artificial intelligence technologies. In the United States, several key policy frameworks and strategies are in place to harness the potential of AI while addressing its ethical, economic, and national security implications [3]. These strategies aim to foster AI research and innovation, promote AI ethics and accountability, support AI workforce development, and enhance U.S. competitiveness in the global AI landscape.

The United States recognizes the transformative power of AI and is actively working to ensure that it remains at the forefront of AI advancements while safeguarding its societal impact. [1-5]

Governments use artificial intelligence (AI) systems [4] to enhance operations and provide services, but their application in policymaking is still in its infancy. AI excels at detecting patterns of need, creating evidence-based programs, predicting results, and analyzing efficacy—all of which are fundamental components of policymaking.

Though AI can facilitate a more thorough, expedient, and rigorous approach to policymaking in the short term, technology will not replace policymakers [2, 5]. In a broader sense, AI can fulfill the promise of a future government that is more inclusive and responsive. These are lofty but attainable goals for public policymaking as AI becomes more widely used. [5]

According to the United Nations (Figure-3] Report, the year 2022 marked a turning point in Artificial Intelligence (AI) systems Significant developments in AI-driven robotics, Quantum Computing, and the rise of generative AI tools that enable human-like communication to have been observed [7, 6]. The astounding potential of AI to propel major advancements in a plethora of disciplines, particularly in making connectedness more meaningful and accessible to everybody, is what most excites us? about this rapid progress. Additionally, we're witnessing a swift transition in the business from hype to the actualization and development of AI-driven goods and services. However, there is little time left over from this rapid progress to consider the wider societal ramifications of AI. There are still important problems and formidable obstacles.

Using AI is not risk-free. Its algorithms—the machinery that distills intelligence from unprocessed data—may.

Figure 3: United Nations Activities on Artificial Intelligence (AI) 2022 [7]

legitimize discriminatory behaviors already in place. Furthermore, several of its tools—like facial recognition—may infringe upon private rights. Rather than giving up on a capability with such potential, the answer to these shortcomings is to adhere to the values of what we refer to as "responsible AI," such as accountability, transparency, and justice. (Refer to the sidebar titled "The Public Sector's Responsible AI Principles.")

AI's Impact on the Global Economy

According to the study done by Bank of America, Artificial intelligence has significant potential to contribute to global economic activity. However, widening gaps among countries, companies, and workers must be managed to maximize the benefits. The

study further indicates that Global revenue associated with AI software, hardware, service, and sales will likely grow 19% per year, reaching $900 billion by 2026, compared with $318 billion in 2020. According to some estimates, AI will contribute more than $15 trillion to the global economy by 2030 [9].

A similar study by McKinsey shows that the impact of Generative AI on productivity could add trillions of dollars in value to the global economy. Their latest research estimates that generative AI could add the equivalent of $2.6 trillion to $4.4 trillion annually across the 63 use cases we analyzed—by comparison, the United Kingdom's entire GDP in 2021 was $3.1 trillion. This would increase the impact of all artificial intelligence by 15 to 40 percent. This estimate would roughly double if we include the impact of embedding generative AI into software that is currently used for other tasks beyond those use cases [13].

The study further indicates that "Generative AI will have a significant impact across all industry sectors. Banking, high-tech, and life sciences are among the industries that could see the biggest impact as a percentage of their revenues from generative AI. Across the banking industry, for example, technology could deliver value equal to an additional $200 billion to $340 billion annually if the use cases were fully implemented. In retail and consumer packaged goods, the potential impact is also significant at $400 billion to $660 billion a year."

Regarding the labor market, the expectation is that AI will eliminate some occupations. Previously, such shifts have mainly eliminated manual jobs, such as production-line manufacturing. What is different this time is that AI can now handle many tasks associated with higher-end professions. It is essential to state that advancements do not just eliminate some jobs; they create whole new industries, businesses, skill sets, and careers. [14]

One of AI's most significant contributions to the global economy is the enhancement of productivity and efficiency. AI-driven automation and machine learning algorithms have revolutionized the way tasks are performed, streamlining processes and reducing the margin of error. This, in turn, has led to increased economic output, improved resource utilization, and substantial cost savings for businesses across the globe. Companies have harnessed AI's capabilities to optimize their supply chains, automate routine tasks, and develop innovative products and services, ultimately boosting their competitiveness in the global marketplace. See Figure-4

Figure 4: The Economic Impact of Artificial Intelligence
(Source: PwC)

In addition to driving productivity gains, AI has played a pivotal role in job creation, albeit in a transformed landscape. As AI automates routine and mundane tasks, it liberates human workers to focus on more complex and creative endeavors. The rise of AI-driven technologies has given birth to new industries and job categories, particularly in fields related to AI research, data science, and software development. However, this transformation of the labor market also poses challenges, as it can exacerbate income inequality and create a demand for upskilling and reskilling to adapt to the evolving employment landscape. [2, 5]

The financial sector, in particular, has witnessed a profound impact from AI, with the rise of robo-advisors, algorithmic trading, and risk assessment models. AI-powered algorithms can process vast volumes of financial data in real-time, enabling more informed investment decisions, reducing risks, and optimizing returns. While these advancements have the potential to create market volatility and complexity, they also underline the need for regulators and policymakers to adapt to the changing dynamics of financial markets, ensuring stability and fairness.

Moreover, AI's potential in healthcare is monumental. It is transforming the diagnosis, treatment, and management of diseases, reducing healthcare costs and improving patient outcomes. AI applications range from drug discovery and genomics to personalized treatment plans and telemedicine, making healthcare more accessible and efficient worldwide. Figure-5

Figure 5: Artificial Intelligence Driven Global Economy
(Source: www.wikipedia.org)

In summary, AI's impact on the global economy is multidimensional. It has ushered in an era of increased productivity, automation, and economic growth, while also presenting challenges such as job displacement and the need for new regulatory frameworks. As AI continues to advance and permeate every aspect of society, it is poised to be a defining force in the future of the global economy, influencing innovation, competitiveness, and the way nations conduct business on a worldwide scale.

The Influence of AI on Economic Policy

AI's influence on economic policy is multifaceted. Governments and central banks are increasingly turning to AI-driven analytics to make data-driven decisions on monetary policy, taxation, and trade. AI can provide insights into economic trends, enabling policymakers to implement measures that stimulate growth and mitigate potential crises.

In addition, AI helps craft regulatory frameworks for emerging technologies and industries, fostering innovation and competitiveness. However, this also poses challenges regarding data privacy, cybersecurity, and ethical concerns that require thoughtful policy development.

Moreover, the influence of Artificial Intelligence (AI) on economic policy is a transformative phenomenon that is rewriting the playbook for how governments and central banks formulate and implement policy decisions. AI's role in economic policy is multifaceted, spanning a broad spectrum of functions, from data analysis and forecasting to regulatory guidance and strategic planning. AI-driven data analytics and predictive modeling are equipping policymakers with unparalleled tools to comprehend complex economic trends, making it easier to anticipate potential crises and devise effective response strategies.

Moreover, AI's capacity to process vast volumes of data in real time gives policymakers the agility to adapt to rapidly changing economic conditions, facilitating nimble responses to unexpected shocks or market disruptions. It optimizes fiscal and monetary policies, ensuring that decisions are data-driven, calibrated with precision, and aimed at achieving targeted economic objectives.

AI's potential extends beyond mere analysis; it also plays a crucial role in designing regulatory frameworks and fostering innovation. In a rapidly evolving technological landscape, AI assists governments in crafting policies that nurture emerging industries such as autonomous vehicles, fintech, and biotechnology. By harnessing AI's capacity to predict potential risks and vulnerabilities, regulatory agencies can design safeguards that strike a balance between innovation and public safety.

However, the advent of AI in economic policymaking does not come without its own set of challenges. Ethical concerns, data privacy, cybersecurity, and the need for comprehensive governance frameworks are paramount in ensuring that AI is leveraged responsibly. Furthermore, policy professionals must be equipped with the knowledge and skills required to comprehend and navigate AI's intricate algorithms and systems. See Figure-6, where global Groos Domestic Product (GDP) impacted by effective f Artificial Intelligence (AI) Systems. [4, 10]

Figure 6: The Economic Impact of AI
(Source: IFILE [X] ION [10])

In conclusion, AI's influence on economic policy is reshaping the decision-making landscape of governments and central banks. With its potential to offer data-driven insights, streamline policy formulation, and foster regulatory innovation, AI is at the forefront of modernizing economic governance, albeit with a set of novel challenges and ethical considerations. See Figure-7, where shows numbers that are simulated AI absorption level per country group, share of firms to provide directional perspectives rather than forecasts. [1, 10]

As nations seek to harness the transformative power of AI, it is imperative that they do so while maintaining the delicate equilibrium between economic progress and societal well-being.

Note that: The technology will also expand the gap between leading and lagging country economies, depending on market frameworks, human capital, innovation base, and AI readiness. For instance, industrialized nations are far better equipped to make up for the loss of jobs brought on by AI technology.

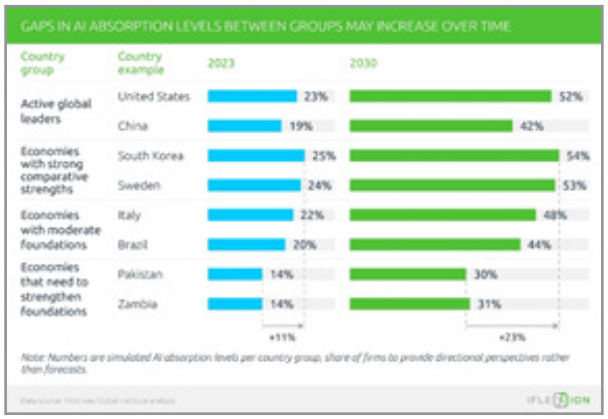

Figure 7: Gaps in AI Absorption Levels Between Groups May Increase Over Time
(Source: IFILE [X] ION [10])

Furthermore, nations with slower-growing economies tend to depend more on labor-intensive sectors like manufacturing, which are more vulnerable to automation. Furthermore, it seems inevitable that the world's most powerful economies would supply AI, making it more difficult for lesser economies to compete.

The Power of the US Dollar

The power of the United States dollar has been a defining pillar of the global economy for decades. As the world's primary reserve currency, the dollar's influence has extended well beyond American borders, shaping the international economic and financial landscape. However, in the present, the dollar's enduring supremacy faces new and complex challenges, largely attributed to the nation's deeply divided political environment.

For example, Russia is ready to develop a new global reserve currency alongside China and other BRICS nations (Brazil, Russia, India, China, and South Africa) (added: Saudi Arabia, Iran, Ethiopia, Egypt, Argentina and UAE), in a potential challenge to the dominance of the US dollar. President Vladimir Putin signaled the new reserve currency would be based on a basket of currencies from the group's members: Brazil, Russia, India, China, and South Africa.

"The matter of creating the international reserve currency based on the basket of currencies of our countries is under review," Putin told the BRICS Business Forum on June 22, according to a TASS report. "We are ready to openly work with all fair partners.[15] "

The deep political divisions within the United States have had reverberations on the dollar's status in several ways. For one, political gridlock and instability can undermine the country's fiscal management and economic policies. The inability to reach consensus on critical matters such as government spending, taxation, and debt ceilings can create instability in the global financial markets, eroding confidence in the dollar as a safe haven.

Furthermore, international perceptions of the U.S. are intrinsically linked to its political stability. A fractured nation, marred by internal strife and governance challenges, can raise doubts about the dollar's dependability as a reserve currency. This, in turn, encourages countries and international entities to seek alternatives for financial transactions, investments, and reserves, reducing the dollar's prominence in global trade and finance.

In a future where the United States remains deeply divided along political lines, the dollar's role as the world's primary reserve currency could potentially wane. Countries may increasingly look to diversify their reserve holdings by shifting investments to other currencies like the Euro or the Chinese Yuan, especially as China's economic influence continues to grow. Moreover, the rise of digital currencies and the potential development of Central Bank Digital Currencies (CBDCs) may offer alternatives to the traditional financial system, potentially challenging the dollar's dominance.

The Threat to the US Dollar's Hegemony

The threat to the US dollar's hegemony as the world's primary reserve currency is a growing concern, and several factors have converged to challenge its long-standing dominance. Foremost among these is the rise of China as an economic superpower, coupled with its strategic efforts to internationalize the Chinese yuan (RMB) and reduce its reliance on the dollar.

China's rapid economic growth (GDP growth), robust foreign exchange reserves, trade balance, and accumulation of gold reserves have positioned it as a potential challenger to the dollar's status. The Chinese government has actively promoted the yuan as an international currency, forging currency swap agreements, establishing offshore yuan markets, and advocating for its use in international trade.

As more countries engage in direct transactions using the yuan and invest in RMB-denominated assets, the dollar's dominance in global trade and finance is gradually being eroded. This challenge is compounded by the emergence of digital currencies, with central bank digital currencies (CBDCs) and cryptocurrencies offering alternative mediums of exchange and stores of value. Moreover, the ongoing geopolitical tensions and uncertainty in the United States, as well as concerns about the sustainability of the US debt burden, have raised doubts among nations about the dollar's long-term stability.

While the dollar's hegemony remains intact for now, the evolving global economic landscape suggests that the future may see it facing a more multipolar currency system, with the yuan and other currencies playing increasingly significant roles in international trade and finance.

AI Driven Cryptocurrency and Impact on the Global Economic Policy

Cryptocurrency is closely related to the topics of AI's impact on the global economy and the influence of AI on economic policy, but it is not synonymous with AI's impact itself. Cryptocurrency is a specific application within the broader context of how technology, including AI, is transforming the global economy and economic policy.

AI's impact on the global economy is a more comprehensive concept, encompassing how artificial intelligence technologies influence economic growth, efficiency, and productivity across various sectors. Cryptocurrency, as a digital financial innovation, is one of the many outcomes of AI and technological advancements that contribute to changes in the global economy. However, its impact on the global economy is not that significant. See Figure-9 as a conceptual impact of the cryptocurrency utilizing Artificial intelligence system [AI, AL, DL].

Figure 9: AI Driven Cryptocurrency
(Source: Youn Woo Shin)

Similarly, the influence of AI on economic policy addresses how AI-driven data analytics and predictive modeling affect the formulation of fiscal and monetary policies, while cryptocurrencies can also have an impact on these policies, particularly in terms of financial regulation and central bank response to digital currencies.

In summary, while cryptocurrency is related to the broader themes of AI's impact on the global economy and economic policy, it is just one facet of the technological transformations occurring in these domains.

Conclusion

As Artificial Intelligence (AI), driven by its sub-systems of Machine Learning (ML) and Deep Learning (DL) [4], continues to shape the global economy and influence policy decisions, the future of the US dollar as the world's primary reserve currency remains uncertain.

China's economic growth and the emergence of BRICS are critical factors in this evolving landscape. While the dollar's status may face challenges, adopting AI in policymaking can help governments and central banks navigate these changes effectively.

In conclusion, the interplay between Artificial Intelligence (AI), the global economy, and the future of the United States dollar is a complex and multifaceted narrative reflecting our interconnected world's evolving nature. AI's profound impact on economic growth and efficiency has redefined how nations conduct business, make policy decisions, and navigate the intricacies of the global financial system. It has propelled productivity, fostered innovation, and posed new challenges that demand regulatory adaptability. Simultaneously, the United States dollar, a lynchpin of the global financial order, faces an uncertain future amid shifting global power dynamics, exacerbated by a polarized political environment at home.

However, the implications of this evolving landscape go far beyond economics and finance. They extend to politics, geopolitics, and governance, where AI is becoming a crucial tool for policymakers to analyze, forecast, and respond to economic changes. As nations strive to navigate these shifting dynamics, AI's prudent and ethical application in policymaking remains pivotal.

The United States' ability to bridge political divides, maintain economic stability, and adapt to a changing global landscape will significantly influence the future of the dollar and its status as the world's primary reserve currency.

In this ever-shifting global landscape, balance and adaptability are paramount. As AI continues to transform economies and policies, as China's role evolves, and as the United States grapples with internal divisions, it is essential for nations to embrace technological advancements judiciously, foster global cooperation, and formulate policies that ensure economic stability, innovation, and prosperity [16].

The future of the global economic order, and indeed the power dynamics in the 21st century, will depend on how these challenges are met and how the opportunities presented by AI are harnessed to create a more equitable and sustainable global economic ecosystem.

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