Al-Qadisiyah Journal for Administrative and Economic Sciences ISSN$_{Online}$: 2312-9883
QJAE, Volume 28, Special issue (2026) ISSN$_{Print}$: 1816-9171
DOI:/ /doi.org/ 10.33916/qjae.2026. Special issue 05461

The Role of Artificial Intelligence in Enhancing Digital Accounting Practices and Improving the Quality of Financial Reports

Sanaa Kamil Obayes Al-Mansoori
sanaa.al-mansoory.iba@atu.edu.iq
Zainab Zuhair Mahdi
zainab.mahde.iba16@atu.edu.iq
Muna Abed Sagban
Muna.fahd@atu.edu.iq
Al-Furat Al-Awsat Technical University/ Iraq
Corresponding Author: Sanaa Kamil Obayes Al-Mansoori, Zainab Zuhair Mahdi, Muna Abed Sagban

Abstract : The aim of this research is to examine the role of artificial intelligence (AI) in improving the digital accounting process and improving the quality of financial reporting in Iraqi government, semi-governmental and commercial institutions. The study uses descriptive analytical methods, which are distributed by questionnaire to 145 selected employees. The results indicate that AI is associated with better efficiency in the accounting supply chain process. They also showed that the speed and accuracy of operations had increased significantly. Compliance with rules, regulations and guidelines that recognise compliance and make things more transparent can help improve the accuracy and quality of financial statements. The study also found that there were technical, human, and legal problems that prevented the best use of artificial intelligence. For example, because there are not enough qualified people, it is difficult to connect to the old system. Based on these results, we recommend companies build their IT systems, train employees, make data secure, open and comply with accounting rules. The results demonstrate the importance of AI as a key solution for improving the financial and accounting performance of digital workplaces.

Keywords: Artificial Intelligence, Digital Accounting, Financial Report Quality, Accounting Efficiency, Governmental and Private Institutions.

1. Introduction:

The digital revolution and the rapid development of information and communications technologies have radically changed the business world in the past 20 years. Of course, this change has not only affected production and marketing. Accounting and finance are also increasingly dependent on advanced digital systems and software to store and handle financial data. Digital accounting ideas have led to the creation of more advanced tools that can handle large amounts of data and complex financial transactions. This has led to the use of artificial intelligence (AI) in accounting. [1,2]. Artificial intelligence (AI) is one of the most important technologies of the time because it uses algorithms, machine learning, and big data analysis to mimic human thought. Since it can analyze financial data accurately, quickly and intelligently, it is increasingly used in finance and accounting. For example, AI can now predict future financial trends, automatically audit, detect database errors and errors, and even suggest wise financial decisions based on patterns and data. [3, 4].

From a technical point of view, there are two main aspects of digital accounting applications that use artificial intelligence (AI).1 technical aspects and 2 financial reports, which are also very important in any accounting program. A good quality financial report is accurate, fair and transparent. Investors and managers use this information to make decisions. AI is also used to improve financial reporting by reducing human errors, speeding up accounting processes, and strengthening the internal control system. [5, 6]. As a result of these changes, modern institutions have a lot of problems to solve when they are ready to use these technologies, such as ensuring that accounting staff can work well with intelligent systems, and addressing ethical and regulatory issues related to the use of artificial intelligence (AI) in sensitive financial operations. Consequently, studies of the role of AI in increasing the digital accounting practice and improving the quality of financial reporting have become prominent in order to clarify the correlation between the scope of AI adoption and improving the quality of financial information that facilitates efficiency, accountability and governance in the digital business framework. [7, 8]. In this regard, the paper aims to explore the growing importance of artificial intelligence (AI) in digital accounting, and the theoretical and practical implications of AI in financial reporting. It also wants to explore the problems that prevent its full implementation and to come up with ideas for how AI applications should function in digital age.

1.1 Research Problem: Although the world has been witnessing groundbreaking in information technology and migrating to digital systems for management of financial data, adoption rate of AI in digital accountingis still constrained in several institutions. This constraint results in lower quality financial reporting with respect to accuracy, transparency and reliability.

Accordingly, the main research problem can be formulated as the following question:

To what extent does artificial intelligence contribute to enhancing digital accounting practices and improving the quality of financial reports?

Sub-questions:

1- What are the main fields and applications of artificial intelligence in digital accounting?

2- How does artificial intelligence affect the quality of financial reports in terms of accuracy, objectivity, and transparency?

3- What challenges do institutions face in adopting AI technologies within their accounting systems?

4- Are there differences in the quality of financial reports between institutions that utilize AI and those that do not?

1.2 Significance of the Research

In the literature this case study is of relevance because it addresses a contemporary phenomena in accounting, emergent AI lead digital accounting. AI is also crucial to making in financial transactions fast and to improving the quality of financial statements. The study findings do not only justify the relationship of AI and accounting information quality, but also provide valuable insights to banks in creating another path for adopting smart technology developed in promoting financial reporting quality in the era of digital transformation, transparency, and accountability.

1.3 Research Objectives

The research seeks to answer the following queries using AI, as well as digitally transformingaccounting systems and increasing the quality of financial reports:.

A.To examine the notion, dimensions and applications of artificial intelligence in digital accounting.

B.To identify how AI still affects the quality of financial reports in relation to truthfulness , transparency and reliability.

C. To examine possible barriers institutions encounter when implementing AI solutions their accounting in system.

D. To generate practical suggestions for furthering AI's ability to enhance accounting function and financial reportquality.

1.4 Research Hypotheses

Main Hypothesis:

There is an empirical and statistically significant association between AI product technologies in digital accounting and the quality of financial reports.

Sub-Hypotheses:

1. Level of AI Usage and Accuracy of Financial Reports Relationship statement There is a positive relationship between : level of AI usage: USE-AI, and accuracy of financial reports.

2. Contributionof AI In improving transparency and dependability in the accounting information.

3. Financial reports quality There is significant variation in the quality of financial reporting between AI users and non-users beginning from the lowest industry concentration to the highest ,with all measures created for costs significantly discriminatory between AI and no-AI adopters.

4. The implementation of AI in the accounting systems of institutions is an artificial process which sits alongsidetechnical, organizational and human challenges.

2. Theoretical Framework

2.1 Digital Accounting

In this increasingly technology rich environment, digital accounting is one of the cornerstonesfor institutions when dealing with such arrival of financial information. Digital accounting refers to the wide application of computer systems and electronic software in recording , storing, analyzing financial data thatfurther enables faster transactions, accurate accounting along-with better human resistance. Outline generally, accounting systems may comprise of ERP (enterprise resource planning) system software, accounting databases and intelligent interfaces through which different accounting units are hooked up to one another including a financial reporting entity.It should be emphasized as well that change from conventional accounting to computerized one is not just a simple shift of instruments, but

through the transformation of the nature of accounting operations, which ranging from manual works into more certain and intelligent work where there is much analyze and control [9,10].

2.2 Artificial Intelligence in Accounting

It refers to a family of technologies and systems that are programmed to process very large amounts of information, learning algorithms that spot patterns in data and then apply these findings to make decisions, as well as cognitive logic behind the analytical method were employed so as to simulate some features of human reasoning. In accounting, AI is employed in numerous applications including automated auditing, financial predictionfraud , or anomaly detection, and the automation of mundane accounting tasks [11].

Recent reports also suggest that AI for accounting are no longer confined to transaction automation but have expanded to decision-making and financial analysis. The advantages of using AI for digital accounting are increased productivity, shorterprocessing time and better data accuracy as well as letting the accountant concentrate on more strategic tasks than routine jobs [12].

2.3 The Impact of Artificial Intelligence on Financial Report Quality

Quality of financialreporting relates to the truthfulness, neutrality and consistency with which an organization discloses information to external and internal stakeholders and makes it available on time. The quality of these reports is a key driver behind increased trust in investors and otherstakeholders, as well as better decision-making. AI and quality Perhaps AI has a big role to play in raising by several these standards, routes[13]:

- Faster and better error financial fraud and detection using pattern analysis algorithms.
- Faster - Leverage technology become faster in the auditing and financial reporting process to decrease timeframes.
- Enabling predictive and financial analysis empowering management to plan and take action from accurate knowledge. Several studies have shown that utilizing AI has a positive effect on the quality of financial information,as well as the accuracy of financial reports quality. [14]

2.4 Challenges and Obstacles in Implementing Artificial Intelligence in Digital Accounting

Nevertheless, despite the clear benefits of AI in digital accounting for companies, they face several obstacles, such as technical barriers (integrating with legacy infrastructure or having a lack of resources to run software based on AI).

Human factors: Insufficient number of personnel for implementing intelligent systems and insufficient education for accountants [16].

Organizational, legal and ethical issues: Issues in data protection, privacy, algorithm transparency and potential bias in AI findings. Key concerns to address prejudice, accountability and establishment include effective regulations [17]. These barriers can slow the uptake of AI and inhibit its power to revolutionize digital accounting.

2.5 Previous Studies

A review of previous studies is a pivotal step for understanding the current state of research and identifying the gap that this investigation addresses. Among the most prominent of these studies are:

Researchers	Year	Study Title	Main Findings
Paul Matudi&Udisifan Michael Tanko [18]	2022	"The Place of Artificial Intelligence in Accounting Field and the Future of Accounting Profession."	Found that AI improved accounting operations, reduced routine tasks, and highlighted need for accountants to upgrade skills.
AsawirShtaiwi Abed [19]	2023	"The Reality of Accounting in the Era of Artificial Intelligence in Iraq."	Significant correlation between AI applications and accounting functions; emphasized training and awareness for accountants.
AninDyah Luthfiani [20]	2024	"The Artificial Intelligence Revolution in Accounting and Auditing: Opportunities, Challenges, and Future Research Directions."	AI transforms accounting and auditing, offering opportunities and challenges; suggested directions for future research.
K. Bagouzi, K. Abi & F. Serdouk [16]	2025	"The Future of Auditing: How AI Will Transform the Profession by 2030."	Projects transformative impact of AI on auditing profession by 2030, enhancing efficiency, accuracy, and predictive capabilities.

It can be deduced from the review of theseresearches that a research gap exists in developing countries, like Iraq, studying the role of artificial intelligence to enhance the quality of financial reports in institutions that apply digital accounting systems. Therefore, one of the greatest contributions of this study isto fill that gap.

3. Research Methodology

3.1 Type of Research

Analytical descriptive research, where the phenomenon under study is described and the relationships between the research variables are analyzed.

3.2 Research Approach

Descriptive Approach: To analyze the theoretical concepts of artificial intelligence and digital accounting and to study their practical applications.

Analytical Approach: To examine the impact of artificial intelligence on the quality of financial reports through the analysis of field data.

3.3 Research Population and Sample

The study population consists of the Iraqi entities that use computerized accounting and the intention here is to examine intelligence in artificial contributing to innovative practices in financial accounting in diverse settings level. It was chosen diversity to represent the profiling, including public sector, semi-public sector and private sector as these institutions have a long history in use of digital systems in financial data processing.

The selected institutions for the research population are:

Public Sector: Ministry of Finance, Ministry of Trade, Ministry of Planning.

Semi-Public Sector: National Oil Companies, General Electricity Company, General Water Company.

Private Sector: Major telecommunications companies, large industrial companies, accounting and consulting offices.

3.4 Research Sample

The research sample was selected representatively to ensure the comprehensiveness and generalizability of the results, as follows:

Table 1: Research Sample Distribution by Sector, Institution, and Number of Participants

Sector	Institution	Number of Participants
Public	Ministry of Finance	20
Public	Ministry of Trade	15
Public	Ministry of Planning	15
Semi-Public	National Oil Company	20
Semi-Public	General Electricity Company	15
Semi-Public	General Water Company	10
Private	Major Telecommunications Company	15
Private	Large Industrial Company	15
Private	Accounting and Consulting Offices	15
Total	-	145

The participants were selected from accountants, financial auditors, and accounting system managers using a stratified random sampling method to ensure proper representation of all sectors and job levels.

3.5 Spatial and Temporal Boundaries

1. Geographical Boundaries: Institutions in Iraq that are included in the study, those which based on digital accounts systems, whether public or semi-public and private sectors as specified in the research population and sample, as from one should be so diverse for results not to be true only but to have characteristics of credibilityenvironment through expression on Iraqi SamerGoodshEndjemoun Al-Khashab et al.

2. Boundaries of Time: The literature proposed concerns with current data and applications for year 2025 reference to recent research trends from earlier years, if it helps clarify the digital change in accounting.

3.6 Research Instrument

The study adopted a questionnaire as the main tool for data collection, using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The questionnaire consists of three main domains:

1- Use of Artificial Intelligence in Digital Accounting:

Measures types of smart applications such as automated auditing, ERP systems, and machine learning.Examples:

.Our institution uses artificial intelligence technologies to analyze financial data.

. Smart systems are employed to detect errors and manipulation in accounting data.

2- Quality of Financial Reports:

Measures the impact of AI on accuracy, reliability, and transparency.Examples:

.Smart technologies contribute to improving the accuracy of financial reports.

.Intelligent systems enhance the reliability of accounting information.

3- Challenges and Obstacles:

Identifies technical, human, and organizational difficulties.Examples:

.Our institution faces technical difficulties in integrating AI into the accounting system.

.Lack of qualified personnel poses a challenge in using artificial intelligence.

Distribution Method: The questionnaire was distributed electronically and in paper format depending on the nature of the institution, with a pilot test conducted to ensure clarity of the questions and to calculate the reliability coefficient (Cronbach's Alpha).

3.7 Statistical Data Analysis Plan

1- Descriptive Analysis:

Use of tables, percentages, means, and standard deviations to describe participants' characteristics and study variables.

2- Examination the Instrument: of Reliability and Validity offor each Cronbach's Alpha section of the questionnaire was calculated to test for internal consistency.

3- Correlation Analysis:of financial Pearson correlation coefficient between Artificial Intelligence and quality reporting.

4- Regression Analysis: Simple and multiple linear regression has been applied to examine the influence of Artificial Intelligence (independent variable) factoron the quality of financial reports (dependent variable).

5- Competitive Analysis (If any):T-test or ANOVA was used to compare differences between the phases between different (governmental/semi-governmental/private). sectors

4. Results Presentation:

Table 2: Distribution of Respondents' Demographic Data

Item	Category	Number of Participants	Percentage (%)
Type of Institution	Governmental	50	34.5%
Type of Institution	Semi-Governmental	45	31%
Type of Institution	Private	50	34.5%
Institution Size	Small	25	17%
Institution Size	Medium	50	34%
Institution Size	Large	70	48%
Respondent Experience	Less than 1 year	20	14%
Respondent Experience	1–3 years	60	41%
Respondent Experience	More than 3 years	65	45%

Interpretation of Table 2: Table 2 shows how the respondents are spread out by the type of institution, its size, and their expertise with digital accounting. The sample has a good mix of people from the government, semi-government, and private sectors. Most of the people who took part in the survey have more than a year of real-world experience with digital accounting. This makes the data obtained for the study more reliable and valid.

Table 3: Applications of Artificial Intelligence in Digital Accounting (Mean Responses 1–5)

Item	Mean Response
Extent of AI use in automated financial auditing	4.2
Extent of AI use in financial forecasting and statistical analysis	4.0
Extent of AI use in financial fraud detection	3.8
Extent of AI use in automating routine operations	4.1

AnalysisBased on Table 3 The table shows that artificial intelligence is utilized by in most institutions different dimensions of digital accounting. Financial auditing automation averagesdominated and were only comparatively that lower for AI use in financial fraud detection. This indicates there is a spectrum in the degree to which institutions depend on AI applications based on their individual requirements.

Table 4: The Impact of Artificial Intelligence on Accounting Efficiency (Mean Responses 1–5)

Item	Mean Response
Speed of completing accounting transactions after AI implementation	4.0
Accuracy of accounting processes after AI implementation	4.3
System's ability to easily process large and complex financial data	4.1

Interpretation Table 4: The table indicates the influence of AI on the efficiency of accounts preparation. The experimentalresults indicate that not only process accuracy but also task completion time are significantly improved by the proposed approach. The system also showed a high capacity to process vast and complex financial databases leading to an in institutional improvement all-round performance.

Table 5: The Impact of Artificial Intelligence on the Quality of Financial Reports (Mean Responses 1–5)

Item	Mean Response
Accuracy of financial reports after using AI	4.2
Credibility of financial information in institutional reports	4.1
Transparency of financial reports after AI implementation	3.9
Compliance of financial reports with international accounting standards	4.0

Table 5 Interpretation: The table reveals that artificial intelligence has helped to enhance the quality of financial statements in relation to accuracy, reliability with international accounting standards. However, transparency and compliance was slightly less well-received than other elements, signifying that institutions must still do more to make financial information clear.

Table 6: Challenges and Obstacles in Using Artificial Intelligence (Mean Responses 1–5)

Item	Mean Response
Technical difficulties in integrating AI with legacy systems	3.6
Lack of qualified human resources to operate AI systems	3.8
Legal and regulatory challenges (data privacy, accounting standards)	3.5

Analysis of Table 6: The table indicates the primary barriers that organizations encounter when using artificial intelligence. Technical problems as well as a lack of skilled workers are the biggest hurdles, then comes legal and regulation-related obstacles. These results highlight the importance of strengthening infrastructure and never-ending practice to reap the benefitsoffered by AI in digital accounting.

5. Discussion of Results

1. Demographic Data of Respondents

Table 2 shows that the sample had enough diversity among the government, semi-governmental, and commercial sectors, as well as differences in the size of the institutions and the experience of the employees. This diversity makes the results more trustworthy and lets us draw more accurate conclusions about how artificial intelligence can be used in digital accounting. Also, most of the people who answered had been working with digital systems at their institutions for more than a year, which shows that they were well familiar with them.

2. Applications of Artificial Intelligence in Digital Accounting

Indeed, automation of everyday life is more common than the detection financial fraud by AI, as they are for intances brought in Table 3 and Figure \[P00521\] (Joia et al., 2020). That could be because the companies are more focused on practicable, everyday applications that save time and money. This in turn results in an opportunity cost delta between deploying AI for analytics or prevention. The mean responses also indicate that many people are not opposed to the use of AI across various digital accounting domains.

3. The Impact of Artificial Intelligence on Accounting Efficiency

As the Table 4 also shows AI has been successful in facilitating the it would be a stretch to say that AI has enabled fast closing process and at the same time ensures veracious information, when available. This is consistent with the study's second hypothesis that considered how AI influences how well accounting operates. And it suggests that businesses do achieve large gains in productivity when they adopt smart technologies.

4. The Impact of Artificial Intelligence on the Quality of Financial Reports

As seen in Table 5, AI facilitated the accuracy and reliability of financial reports that were IFRS-compliant. But a grade of B on openness, says that we have more work to do in making financial information clear within the company as well as to outside auditors. The implication here is that acquiring artificial intelligence is not merely a means of improvement: It could be a driver affecting the quality of financial information and decisions.

5. Challenges and Obstacles in Using Artificial Intelligence

also provide evidence that infrastructure, training and the creation of explicit standards are essential in combating AI risks in digital accounting. standards. The results AI with aging systems. The research suggests insufficient numbers of qualified staff are also an issue, along with legal or regulatory issues, not only in privacy but accounting In Table 6, we can see that institutions face many technical obstacles to integrating

6. Conclusions

1. 1. The findings indicate that artificial intelligence has significantly influenced the expansion of digital accounting by automating tedious paper-based tasks and facilitating computerized financial audits.

2. 2. Accounting has become much more efficient by speeding up the time it takes to settle transactions, making flow work more accurate, and making it easier to deal with large amounts of intricate financial data.
3. The study showed that the quality of financial statements improved after AI was used, notably in terms of accuracy, reliability, and following international accounting standards. This showed that more transparency is needed.
4. The study found that there were technical, human and legal challenges for organisations trying to deploy AI, including the struggle to create a single solution out of disparate legacy systems; not having enough staff with the right skills; and coping with concerns to data standards and data protection. related
5. In general, the results confirm hypothesis that artificial intelligence the research facilitates digital accounting work and improves the quality of financial reporting when banking constraints are effectively overcome.

1. Recommendations

1- Build the technological framework inside companies where AI can mesh with existing accounting systems.

2- Train and certify its employees on use of AI technologies to the improve their skills and guarantee the employee's best usage of AI.

3- Promote transparency in financial reporting by developing guidance onpresenting the outputs of AI-driven finance algorithms.

4- Develop data protection policies and adhere in to international accounting standards order to mitigate the legal and regulatory risks of AI applications.

2. Expand the use of AIto include areas such as analytical intelligence and early detection of financial fraud to fully enhance the effectiveness of digital accounting.

References

[1] Hossain, Muhammed Zakir, et al. "Transformative impact of artificial intelligence and blockchain on the accounting profession." European Journal of Theoretical and Applied Sciences 2.6 (2024): 144-159.
[2] Mediaty, Mediaty, et al. "Review of Artificial Intelligence In Accounting: Trends, Implementation and Implications." Journal of Accounting and Finance Management 5.5 (2024): 1146-1160.
[3] Vadapalli, VenkataKhajit Varma. "Artificial Intelligence in Finance: Transforming Accounting for Strategic Agility." International Journal of Emerging Trends in Computer Science and Information Technology (2025): 259-264.
[4] Sharshouh, Amneh Abu. "The Use of Artificial İntelligence in Accounting and Auditing." KaradenizEkonomiAraştırmalarıDergisi (2024), 6.1: 1-15.
[5] Almaqtari, Faozi A. "The role of IT governance in the integration of AI in accounting and auditing operations." Economies 12.8 (2024): 199.
[6] Weheba, Mai Ali Mohammed. "The Application of Artificial Intelligence (AI) in Accounting and Auditing: A Narrative Literature Review." Journal of Financial and Administrative Studies and Research 16.3 (2024): 1203-1222.
[7] Leocádio, Diogo, LuísMalheiro, and João Reis. "Artificial intelligence in auditing: A conceptual framework for auditing practices." Administrative Sciences 14.10 (2024): 238.
[8] Kottara, Chara, and Sofia Asonitou. "Artificial intelligence and the new norm in Financial and Managerial Accounting and Auditing." International Journal of Science and Research Archive 13.2 (2024): 3200-3212.
[9] Fedyk, Anastassia, et al. "Is artificial intelligence improving the audit process?." Review of Accounting Studies 27.3 (2022): 938-985.
[10] Wang, Junli. "Current Application Status, Challenges, and Future Prospects of Artificial Intelligence in the Accounting Field." Journal of Computer Science and Digital Technology 1.1 (2025): 43-52.
[11] Alfares, Saja, and Tuba Şavlı. "Effects of using artificial intelligence on the accounting profession: Evidence from Istanbul certified public accountants." MuhasebeveFinansmanDergisi 100 (2023): 173-191.
[12] Мохаммед, АсадМуншид, and АсаадВаххаб. "THE RELATIONSHIP BETWEEN ARTIFICIAL INTELLIGENCE AND E-ACCOUNTING PROGRAMS: IMPACT ON THE QUALITY OF FINANCIAL REPORTS IN IRAQI BANKS." Financial and credit activity problems of theory and practice 6.59 (2024): 180-193.
[13] Odonkor, Beryl, et al. "The impact of AI on accounting practices: A review: Exploring how artificial intelligence is transforming traditional accounting methods and financial reporting." World Journal of Advanced Research and Reviews 21.1 (2024): 172-188.
[14] Al-Akari, Saleem. "The Impact of Artificial Intelligence Applications on the Quality of Accounting Information." Journal of Amran University 5.9 (2025).

[15] Odonkor, Beryl, et al. "The impact of AI on accounting practices: A review: Exploring how artificial intelligence is transforming traditional accounting methods and financial reporting." World Journal of Advanced Research and Reviews 21.1 (2024): 172-188.
[16] Bagouzi, K., Abi, K., and F. Serdouk. "The Future of Auditing: How AI Will Transform the Profession by 2030." Journal of International Commercial Law and Technology, vol. 6, no. 1, 2025, pp. 370‑389.
[17] Greenman, Cindy, et al. "An analysis of the impact of artificial intelligence on the accounting profession." Journal of Accounting, Ethics & Public Policy, JAEPP 25.2 (2024): 188-188.
[18] Bako, Paul Matudi, and Udisifan Michael Tanko. "The place of artificial intelligence in accounting field and the future of accounting profession." Journal of Artificial Intelligence, Machine Learning and Neural Network 25 (2022): 15-21.
[19] Abed, AsawirShtaiwi. "The Reality of Accounting in the Era of Artificial Intelligence in Iraq". Tikrit Journal of Administrative and Economic Sciences, vol. 19, no. 63, 1, Sept. 2023, pp. 1-21, doi:10.25130/tjaes.19.63.1.1.
[20] Luthfiani, AninDyah. "The Artificial Intelligence Revolution in Accounting and Auditing: Opportunities, challenges, and future research directions." Journal of Applied Business, Taxation and Economics Research 3.5 (2024): 516-530.