JURNAL ECONOMIC DEVELOPMENT
E-ISSN :3031-5891

ARTIFICIAL INTELLIGENCE TO ADDRESS ECONOMIC CHALLENGES AND DEVELOPMENT: A CASE STUDY AND ANALYTICAL FRAMEWORK FOR IRAQ

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Abstract

In the initial stages, the role of artificial intelligence (AI) in addressing Iraq's economic challenges appeared promising, with potential solutions proposed for issues such as unemployment and inflation. However, despite the theoretical strength of AI-driven models, Iraq's complex economic structure marked by severe corruption, an overreliance on oil, and a fragile institutional environment posed significant obstacles to real-world implementation. This study examines why AI applications in Iraq's economic development initially seemed like a comprehensive solution but encountered substantial difficulties when addressing inflation and unemployment concurrently. The integration of AI into Iraq's economic planning revealed that technological tools alone cannot overcome deeply entrenched systemic challenges without robust human oversight and institutional reforms. Despite these limitations, AI contributed to important advances in economic modeling and policy analysis, providing valuable insights into sustainable development strategies. The study concludes that while AI holds promise for supporting economic policy design and evaluation, the ultimate responsibility for effective implementation and reform remains with human decision-makers.

Keywords: Artificial Intelligence; Development Economics; Human/Machine; Unemployment; Inflation

Informasi Artikel

Diterima : 03/11/2025
Review Akhir : 15/12/2025
Diterbitkan online : 12/2025

INTRODUCTION

Artificial intelligence, AI has a significant impact on the economy (Furman & Seamans, 2019). This paper aims to answer the question: "Can AI replace humans in solving major and chronic economic problems such as unemployment and inflation in an economy like Iraq? Moreover, how can this be done to improve economic development? If not, can it be employed, and how? It has been assumed that AI can address actual solutions, translating them into guaranteed solutions for problems (Xu et al., 2021), but why has it remained intractable until nowadays? AI is expected to suggest a plan(s) for treatments, but can it guarantee a set of qualitative procedures to contribute to this with the economic conditions?

It is almost the only similar work that explored the enormous potential of AI in addressing the complex challenges of development economics, particularly in financial inclusion and poverty alleviation, with the opportunities and challenges associated with integrating AI solutions into those challenges (Jejeniwa et al., 2024). However, it focused on financial inclusion, essential for sustainable

development. However, it stressed that implementing AI solutions imposes significant economic and institutional challenges.

The Q has asked on Chat GPT. The answer was that this is a complex economic challenge, but it can be driven through a set of policies. It refers to works and measures: (1) Policies to stimulate balanced economic growth, perhaps, and enhance investment in infrastructure and productive sectors, providing incentives for small and medium-sized enterprises to expand their activities by creating jobs. (2) They may balance monetary policies by adjusting interest rates to stimulate growth without excessively increasing inflation, which is a time-bound measure. (3) Enhancing education and vocational training by investing in developing the skills required in the labour market to reduce the skills gap. (4) controlling inflation by monitoring commodity prices and providing targeted support to needy groups*. These would not guarantee results.

When asked in detail, the answer was that it is difficult because of the potential trade-off described by the Phillips curve, which indicates an inverse *relationship between inflation and unemployment*. However, the trade-off is not absolute, as some strategies can help achieve both goals under the following appropriate conditions:

1) *Supply-side policies* refer to improving productivity. Investments in infrastructure, technology and education can increase productivity and reduce costs to firms while enabling economic growth, creating jobs and reducing business costs. Reducing taxes or regulations on firms can reduce production costs, reduce inflation and encourage employment. In addition, encouraging innovation and supporting research and development can lead to technological progress that enhances efficiency. Addressing structural issues (such as reducing transportation or energy sector bottlenecks) will expand the economy's productive capacity. In addition, encouraging innovation, such as supporting R&D, can lead to technological progress that enhances efficiency.

2) *Encouraging aggregate supply growth*. As aggregate supply can be enhanced by addressing structural issues (Zheng et al., 2020) i.e., reducing bottlenecks in the transportation or energy sectors) which will expand the economy's productive capacity and reduce inflation while supporting job growth.

3) *Stabilizing expectations is a reliable monetary policy* where central banks can anchor inflation expectations by clearly communicating their objectives and strategies, such as inflation targeting. In addition, wages are linked to inflation (Chang, 2024) , as ensuring that wages adjust smoothly with inflation prevents sharp spirals between wages and prices, reducing pressures on inflation and employment.

4) *Balanced fiscal and monetary policy* means targeted stimulus, as governments can use targeted fiscal policies to support industries suffering from high unemployment rates without worsening

* It has added that it will provide us with a link to follow and pay for full details and advanced policies to solve the problem. Just a moment! Unfortunately, I was unable to provide a link to follow. However, if you need a detailed explanation or more examples of specific policies to address unemployment and inflation together, I am here to help!

the economy (Danylyshyn et al., 2021). It also means monetary caution, as central banks can use moderate interest rate adjustments to balance growth and price stability.

5) *Reducing structural unemployment*, as education and training programs can enhance the workforce's skills and ensure a better match with labour market requirements (Yuldoshevna, 2024). Geographical mobility programs, addressing housing and transportation barriers, help workers move to areas with better job opportunities.

6) *International trade and competitiveness*: Expanding exports through trade agreements and competitive prices would stimulate demand for domestic products, boosting employment opportunities without adding inflationary pressures (Wilkinson et al., 2000).

In fact, strategies require conditions for success: moderate inflation and complex economic coordination. Moderate inflation is more likely to be successfully addressed when inflation is not excessively high and severe, which often requires radical measures such as contractionary monetary policy. For example, as for economic coordination, fiscal and monetary policies must work in harmony to avoid conflicting effects by addressing demand and supply factors together to reduce unemployment and inflation simultaneously or sequentially, especially if structural reforms lead to a more flexible and resilient economy.

THE TREATMENTS RATIONALE

The current work sees that AI is indispensable in scientific research, information and data, and the possibility of developing solutions and addressing the most prominent economic development problems such as unemployment and inflation (Yeldan, 2008). The work focuses on scientific research and its role in processing, from collecting information and analyzing data to improving productivity and addressing significant economic challenges.

Therefore, instead of adopting the GATT GPT answer, the method of logical analysis of gradual tracking or problem-solution sequence will be adopted in the methodology of answering the study question and adopting the deductive approach from generality and comprehensiveness to partial and detailed in proposing solutions, without altogether dispensing with AI.

The first section deals with defining the ability of AI in scientific research. In the second one, obtaining information and analyzing statistical data, and in the third, developing solutions for economic development are the most prominent social problems. Fourth, analyzing treatments for unemployment and inflation under a bad institutional environment. This means that the human being must be present first and last and. The data was initiated for employment in data analysis, design, modelling, and interaction with unstructured data. Data is in pure sciences, humanities, and social sciences, and it is applied to the economy.

First, The Role of AI in Scientific Research

The use of AI has become important in personal experiments* for decades (Chairman), 1975) and has significantly impacted scientific research, accelerated the quality of research and improved it with discoveries in various fields, including data analysis, design and modelling. This is the beginning of the change in the pattern of economic quantitative work since the last century.

Data analysis processes large amounts of information faster and more accurately than humans, which helps discover trends and patterns that may be difficult to discover using traditional methods. It even provides machine learning for researchers to use machine learning algorithms and training on specific models and data, as it allows predicting future results or classifying them accurately, especially in fields such as medicine and the environment. Thus, automation of repetitive tasks such as data collection, classification and arrangement help focus on creative and complex tasks, predicting results and predicting future ones, whether immediately or historically, which can be useful in fields such as medical or economic research, as mentioned.

Designing and modelling for specialties such as chemistry and physics speeds up the process of designing new compounds or mathematical models, requiring a long manual testing (Baum et al., 2021). In literary disciplines, text analysis, literary research, and natural language processing (NLP) help analyze scientific articles, summarize research, and extract information from scientific literature quickly and accurately (Egger & Gokce, 2022), thus facilitating the literature review process. In such cases, interaction with unstructured data such as images, videos, and unstructured texts (Mueller, 2014) has opened up new horizons in fields such as forensics, environmental analysis, and social sciences. Accordingly, AI helps accelerate and expand the scope of scientific research and enhances the ability of scientists to deal with the significant challenges of the modern era.

The current study believes that employing AI in addressing chronic economic development problems goes through four stages, starting with humans and ending with them, but it uses the preparation of requirements to address problems as in (Table 1). The stages are providing data, identifying problems, defining their nature, and adopting policies. In contrast, AI is present in programmed treatments.

* The history of the field of AI has known from personal experience, it represents a tradition as old as the desire to create artificial intelligence. Just before Homer, P. McCorduck (moderator), blogging, University of Pittsburgh, MIT.

Table 1: Stages of employing AI in addressing economic development problems

Phase 1: The role of (Dhs) in scientific research	**Phase 2: Providing information and statistical data analysis**	**Phase 3: Identifying economic development problems and improving productivity**	**Phase Four: Treatments for Unemployment and Inflation in Iraq by Employing (Dhs)**
1- In the social sciences 2- In the humanities 3- In economics	1- Big data analysis 2- Data analysis and forecasting of economic trends 3- Analysis of scientific research processes - Analysis of unstructured data - Automation of data collection and analysis - Machine learning and modelling - Human-machine collaboration - Acceleration of simulation and mathematical modelling - Innovation and design in science and engineering - Acceleration of academic publishing - Automatic reports and summaries - Text and natural language analysis - Support for innovation and entrepreneurship - Enhancing education and skills	1- Predicting economic trends - Analyzing economic data and future trends - Improving sustainable development strategies - Accelerating the achievement of sustainable development goals - Improving performance in various economic sectors 2- Improving economic inclusiveness - Promoting investments in vital economic sectors - Supporting innovative government policies - Combating corruption and improving transparency - Geographical and economic analysis	1- Improving the labor market and employing AI in employment - Improving the labor market and automating employment - Training the workforce on future skills - Improving economic productivity 2- Promoting entrepreneurship and innovation - Improving economic productivity and reducing inflation - Achieving economic sustainability and reducing inflation - Innovative solutions to combat inflation - Supporting financial inclusion - Expanding financial services - Achieving economic inclusion

1. Social Sciences

The use of AI in social sciences and humanities studies has revolutionized how research is conducted and how data is analyzed, providing powerful tools for analyzing traditionally complex human and social phenomena. Social and big data such as social media posts or internet search logs can be analyzed, social trends and interactions between individuals can extracted, and even the effects of media campaigns can be extracted (Saheb et al., 2024). Behavioral analysis of individuals or groups in various social contexts can then be used to understand how societies respond to public policies or significant events. In psychology and sociology, sentiment analysis textual or audio data can be used to understand individuals' feelings in social or psychological contexts (Fersini, 2017), which is helpful in social psychology research or emotion studies.

It has been used to analyze social problems like poverty or social inequality. In geographic data analysis in the social sciences, geographic information systems (GIS) integrate and analyze geographic data with social data to understand the relationships between social and spatial factors (Taura & Abdulkadir, 2023), such as studying the impact of poverty on geographic areas or analyzing migration. When interacting with global social issues, it analyzes immigration policies, human rights, and social and political attitudes on issues such as immigration through news analysis, blogs, and social media, providing new insights into social and political interactions worldwide.

2. Humanities

In text analysis and literary texts, it processes natural language (NLP) to analyze literary and social texts, such as books, articles, and digital content, and deep learning models can analyze sentiment, identify linguistic patterns, and extract important concepts. Examples include its use in analyzing political speeches, literary studies, or media studies. Automatic summarization, where long texts can be summarized quickly, facilitates literature reviews in philosophy or sociology. In historical and archaeological studies, it is used for information mining to analyze significant historical texts through techniques such as ancient text analysis (Past, 2024) and extracting historical information from old books or documents, in modelling and simulating historical or social events to understand the potential impacts of different decisions on society at specific times.

Personalized learning and human-machine interaction in education, which provides learning environments tailored to each student based on their needs, enhances teaching effectiveness in humanities fields such as literature, philosophy and psychology. It includes the analysis of human interaction in group learning (Stone, 2023), as AI techniques can used to analyze how individuals interact in group learning environments, which helps improve collaborative learning strategies.

Even in moral philosophy, studies help study ethical issues by simulating ethical scenarios or analyzing historical philosophical positions. AI may test complex philosophical concepts such as freedom, justice and equality. In the arts and creativity (Niv & Sulitzeanu-Kenan, 2022) creating, literary or musical works of art can be used in artistic creativity to produce new literary texts or musical

pieces, which opens the way for new artistic interaction between humans and machines. Some researchers in the arts study the impact of AI on artistic production. In addition, popular culture studies through the analysis of digital culture in the field of popular culture studies, analyzing how digital media affects the audience and how movies, television shows and games affect society. Using these tools, researchers in the social sciences and humanities can reach new levels of analysis, which contributes to accelerating discoveries and improving the accuracy of research.

3. *Economics*

Economics and quantitative economics address the detection of economic problems despite the field being a social science. The reason is that AI is a branch of modern trends that has transformed how economic data is understood and analyzed. It helps analyze big data and process vast amounts of it quickly and accurately. It helps reveal patterns and trends that may be invisible to the human eye, such as prediction and diagnosis that help in policies and allocating resources (Yaiprasert & Hidayanto, 2024) in addition, predicting economic trends, such as market fluctuations, demand for products, or currency movements, through machine learning techniques. In economic forecasting, machine-learning techniques help decision-makers plan for future economic trends, such as unemployment or inflation rates. It also detects deviations and manipulation when analyzing financial reviews and discovers abnormal trends that may indicate fraudulent activity, enhancing the financial system's security.

Thus, AI contributes to improving economic policies and helps the government adopt more effective economic policies. At the same time, it helps allocate resources when analyzing market needs and directing those resources more efficiently, and it contributes to improving economic performance. Therefore, it plays an important role in better economic understanding and designing new solutions to complex economic problems.

AI has addressed these problems by improving operational efficiency in distributing public resources such as government budgets, reducing costs and increasing productivity using robots and automation technologies. Assisting in crises such as economic disasters or hyperinflation, proposing immediate solutions based on previous experiences and accurate analyses, and providing analysis and development of e-commerce patterns, financial markets, investment portfolio management and improving investment decisions. The most effective tools in AI are artificial neural networks and predictive algorithms to understand the economic future and robots, as well as to improve industrial and service efficiency.

However, challenges need to be addressed, such as obtaining reliable and big data, the ethics of using AI, and the impact of automation on traditional job opportunities. Therefore, it is necessary to download the latest applications for iOS or Android devices to experience the advanced voice mode to understand and respond to humour and sarcasm and the ability to sense interruptions. Addressing the study objective requires placing the steps in sequential order in providing treatments before using AI, as suggested by (Table 2) by providing development information, identifying its problems, and then employing AI.

Table 2: Identifying development information and its problems before using AI

Step two Collecting information and analyzing statistical data	**Step Three Addressing Economic Development Problems and Improving Productivity**	**Step Four Employing AI in Unemployment and Inflation Policies Separately**
Scientific research and analysis	Overall View and Comprehensive Analysis of the Economy	Improving the Labor Market and Improving Productivity
Big data analysis	Forecasting Economic Trends	Achieving Economic Sustainability to Reduce Inflation
	Improving the Performance of Economic Sectors	Financial Inclusion and Expanding Financial Services

Second. Collecting Information & Analyzing Statistical Data

AI plays a role in accelerating scientific research and analysis processes, as it has become pivotal in the modern era and has provided researchers with advanced tools and techniques that can reduce the time spent collecting and analyzing data, speeding it up, and concluding. The other role is in analyzing data and predicting development trends, especially in analyzing big data.

1. *Accelerating scientific Research, Analysis Processes*

In interacting with data, AI provides recommendations or suggestions while researchers are working on their experiments or analyzing their data, such as suggesting research trends that may be useful (Xu et al., 2021) based on the data collected, which is called intelligent interaction. It helps create innovative interfaces that make it easier for researchers to interact with complex data and enhances their ability to make quick decisions (Balbaa & Abdurashidova), as follows.

Accelerating simulation and mathematical modelling involve simulating scientific phenomena, and s Instead of conducting expensive experiments, AI can used to simulate results faster. This supports the improvement of modelling algorithms: using those helps improve the accuracy and efficiency of mathematical and scientific models that scientists rely on in their research. Innovation and design in science and engineering, supported by AI in fields such as engineering, contribute to accelerating the design of new models or materials by analyzing available data and proposing innovative solutions. It contributes to analyzing proficiency tests and experimental test results faster, which helps identify the best solutions at the lowest cost and time. From here, academic publishing accelerates the discovery of similar studies and suggests related research and articles based on the topics that researchers are working on, speeding up the academic publishing process and enhancing knowledge integration. In this, citation analysis and tracking the extent of the impact of scientific research through citations and

academic links, as well as determining the importance of research and modern academic trends, are used.

Through scientific research, automatic reports and automated summaries of research or scientific papers can obtained automatically, making it easier for researchers to view important information quickly. Not only that, but analytical reports after analyzing the data were produced to produce comprehensive reports that contributed to accelerating the scientific decision-making process (Dos Santos et al., 2023). In the humanities fields, text analysis, natural language, information extraction, and natural language processing techniques (NLP) (Sefara et al., 2022), as AI enables the analysis of vast amounts of scientific texts, classifying them, and extracting the most relevant information, in order to summarize complex texts and extract the main idea from them quickly. In addition to automatically reviewing the literature in specific fields, it saves researchers time they would have spent analyzing and organizing articles.

In business transactions, it supports innovation and entrepreneurship and accelerates the development of new products and services by facilitating market analysis and providing insights into consumer needs and trends. This helps improve marketing and investment strategies in small and medium enterprises and other aspects of supply chain optimization, such as machine learning and big data analysis, which means reducing the costs associated with inventory management(Hassan, 2020). It also enhances education and skills in developing educational systems geared to meet each individual's needs, thus enhancing education and training in vital economic fields such as technology, engineering and finance. It improves workers' skills and develops training programs to increase efficiency in various economic sectors. Through self-learning and adaptive training, workers can acquire the skills necessary to adapt to changes in the labor market.

In short, AI is not limited to accelerating scientific research and analysis processes only but also contributes to improving the accuracy of results and increasing the efficiency of academic work. These technologies allow researchers to save time and resources, enhancing productivity and accelerating scientific discoveries and innovations.

2. *Big Data Analysis*

AI provides the ability to process vast amounts of Big Data and extract patterns that are difficult to analyze manually. Through machine learning algorithms, hidden trends within the data may not be visible using traditional tools. In this data mining, data can be analyzed from multiple sources (such as scientific experiments, previous research results, and textual content) (Collins et al., 2021) to provide new insights, which accelerates the process of scientific discovery.

Unstructured data analysis Image and video analysis in scientific research involving image analysis (such as forensics or medical radiology), AI can speed up the screening and diagnosis process through computer vision tools that process images at much faster rates than humans. Interact with and manipulate audio data to analyze conversations, interview recordings, or lectures and provide

summaries or convert them to text. Automating data collection and analysis includes automating literature searches through scientific databases and reading and analyzing scientific articles faster than human researchers do. This not only helps speed up the information-gathering process but also increases its accuracy and effectiveness. In addition, filtering and classification using techniques such as machine learning to classify articles and, examine their relevance to the research area, and extract key information automatically, saving time and effort.

of unstructured data, images, and videos in scientific research involving image analysis, such as forensics or medical radiology, AI can speed up the screening and diagnosis process through computer vision tools that process images at much faster rates than humans do. Moreover, it interacts with and manipulates audio data (Oza et al.) to analyze conversations, interview recordings, or lectures and provide summaries or convert them to text.

In machine learning and modeling, there are predictive models that can built using algorithms to predict the results of future experiments or interactions based on historical data. This reduces the need to conduct expensive or complex experiments. Deep learning is expanding further into modelling complex data such as images or audio faster and more accurately, enhancing research in fields such as medicine, engineering, and environmental science.

Third. Defining Problems to Improve Productivity

We see that the role of AI in developing multidisciplinary solutions in development has become closer to theory than to application. It helps analyze complex data, support decision-making, and achieve integration between various fields such as economics, engineering, social sciences, and technology. It contributes to improving economic performance and increasing efficiency through innovative solutions across multiple applications, roles, and analyses of big economic data. However, this improvement remains subject to performance and application.

In development topics, two problems have emerged: improving the overall view or comprehensive analysis of the economy and predicting economic trends. The researcher and planner need to determine the priority of investments in vital economic sectors and achieve economic inclusion at the same time, in addition to geographical and economic analysis and support for smart government policies. In most cases, it is believed that it is imperative to combat corruption and improve transparency in order to achieve solutions to development problems (Hosseini, 2003). The second issue concerns prediction, which needs a special pause.

3. *Improving Overall View or Comprehensive Economy Analysis*

In enhancing investments in vital economic sectors, the priority of enhancing investments in vital economic sectors by humans should be determined. This refers to identifying future investments (United Nations, 2009), as investment trends in different economic sectors such as technology, renewable energy, and healthcare can be analyzed. By identifying areas likely to grow, governments

and investors can direct capital towards projects that contribute to reducing unemployment and promoting economic growth. Supporting small and medium-sized enterprises. AI contributes solutions to identifying investment opportunities that can support small and medium-sized enterprises in increasing their production, thus reducing unemployment rates by increasing demand for labor.

This assumes achieving economic inclusion, meaning identifying economic gaps. Here, AI can be used to process big data and analyze gaps between different social classes or geographic regions. This analysis helps direct policies towards areas most affected by unemployment or inflation. Here, the state must provide smart financial services to facilitate access to financial services for individuals in remote or poor areas through digital banks or data-based credit. This enhances financial inclusion and reduces the negative impact of inflation on vulnerable groups.

This trend requires geographic feasibility studies or geographic and economic analysis, as city planning can be improved and the most suitable locations for regional development projects can be selected by analyzing geographic data such as population density, access to resources, and available infrastructure. This is a great support for smart government policies in analyzing governments' economic policies and designing innovative and effective economic policies to combat problems such as unemployment and inflation. By simulating the effects of different economic policies on the economy, decisions can made based on accurate and in-depth data analysis. This is a clear aid to support decision-making: AI-powered tools such as machine learning models help provide recommendations on the best policies that can reduce unemployment and improve economic stability under changing circumstances. Finally, yet importantly, it enhances the fight against corruption and improves transparency in government data analysis. By analyzing financial data and government, spending, abnormal patterns that indicate corruption or mismanagement can detect.

4. *Predicting Economic Trends*

The more accurate the analysis of economic data, the better the results of future trends. It indicates, among many others, improving sustainable development strategies, accelerating the achievement of sustainable development goals, and improving performance in various economic sectors, meaning reaching improved economic inclusiveness ("The Sustainable Development Goals Report 2023, , Special edition," 2023), and expanding these aspects is more beneficial. It is a primarily human task. In predicting economic trends, AI uses techniques such as machine learning to analyze huge amounts of economic data such as financial data, trade, labor market, and commodity prices [i]. This helps in predicting future trends such as economic growth, inflation or unemployment and contributes to financial forecasts through predictive models.

This approach leads to providing insights into how economic policies or market changes will affect economic growth. This allows government institutions and private companies to develop better strategies. Humans know best the nature of the people involved. For example, analyzing data to predict unemployment rates helps the government using machine learning algorithms and big data analysis to

identify sectors that face challenges in providing job opportunities and thus enable the government to develop appropriate strategies to provide jobs in those sectors (Channe, 2024).

With inflationary expectations, AI can analyze market data and prices of goods and services to provide accurate inflation forecasts. This helps decision-makers take preventive measures such as adjusting monetary policies or other economic trends to combat inflation before it becomes a crisis.

In the event of a trend towards analyzing sustainability within the framework of economic development and improving sustainable development strategies, AI can analyze the impact of economic activities on the environment (Jiang & Chen, 2024) and provide solutions to reduce the environmental impact. It can also improve the use of natural resources such as water and energy through modeling and analysis of environmental data. In the context of rural and agricultural development, smart agriculture can use agricultural techniques such as dry and conservation agriculture through marginal techniques and tools such as soil analysis, weather forecasting, and the use of drones to monitor crops. This contributes to improving agricultural productivity and enhances the sustainability of agriculture.

Achieving environmental sustainability accelerates the achievement of sustainable development goals ("The Sustainable Development Goals Report 2023, , Special edition," 2023) through AI in achieving environmental goals through technologies such as managing natural resources more efficiently (monitoring air and water quality, reducing carbon emissions, improving waste management). The same process in combating poverty and hunger by developing new technologies to improve agriculture, improve public health, and expand educational opportunities, as AI can contribute to reducing economic and social gaps.

5. *Improving Performance in Various Economic Sectors*

The improvement in the achieved goals of sustainable development supports the industrial and manufacturing sector in digital transformation by monitoring the improvement of production processes, reducing costs and increasing efficiency. However, technologies such as smart manufacturing and predictive analysis can contribute to improving product quality and reducing waste. The effects transferred to the financial sector in the field of banking and finance, where AI contributes to analyzing financial risks, detecting fraud and improving customer service through smart chatbots. The series of improvements means economic inclusion (Xi & Wang, 2023) and expansion of financial services through AI technologies such as digital banks and mobile finance. Financial services can provide to wider segments of the population, which enhances economic inclusion in remote or poor areas. Ultimately, the use of AI results in sustainable financing by evaluating companies' investments in sustainable social and environmental projects, which enhances the opportunities for financing sustainable development projects and attracts more investments in these areas.

Forth. Can AI have used to Address Unemployment and Inflation!

AI mechanisms can have utilized and their application ensured in addressing severe economic problems such as unemployment and inflation at the same time or close to it, which are among the biggest economic problems that have been difficult to solve in Iraq or other countries for two decades and up until today. The expertise and experience of experts in the priorities of addressing the development map made by humans much better than any possible strategy for AI. With the help of all possible software, the planner can adopt targeted treatment strategies.

The problem of unemployment and inflation stand on opposite ends of the economic balance stick for the steady rate of growth and the center of balance remains almost at the stability of the economy in order to continue growth. Any imbalance tends the economy either towards higher unemployment rates or towards a return to rising inflation rates. Any problem for political, civil, natural or non-civil reasons throws the economy into a deep decline, because oil revenues, for example, barely cover financing current expenditures while investment expenditures not covered by the returns of the economy except for a small amount or by subsequent costs. The infrastructure is declining and declining further. Industries in all their branches have fallen to contribute less than 2% of the GDP by 2024. All investment allocations controlled by financial corruption, which has no room to find solutions except by applying good governance, which is far from achieving. Here, a third problem has added to the unemployment and inflation rates, which are stolen rents returns.

These pillars are the ends of the critical triangle of development in Iraq for years, which has directly reflected on the environment and has condemned sustainable development to lose ends. Solutions may not appear on the horizon except for decline and rising costs of subsequent development with unstable returns as well, and modest, unsustainable rentier development. According to the analysis of this paper, it is possible to sense the beginnings of treatment, starting with the central decision for real, comprehensive development on a parallel track:
First: The firm intention to develop economically with positive, non-rentier rates for the growth of the agricultural and industrial sectors.
Second: The real intention completely eradicates financial and administrative corruption and the clear transition to a market economy.

AI has a non-linear effect on unemployment, as the acceleration of it to lead to a reduction in unemployment, by through real economic growth, environmental investments begin to improve [ii] and the focus on the difficult triangle of development and the unstable equation continues. Solutions can start from one key that addresses the problems of inflation and unemployment immediately, as follows. AI supports the acceleration of scientific research and analyze these intractable problems by assuming four mechanisms (Iñaki Aldasoro, 2024; Mutascu, 2021): (1) Improving the labor market to improve productivity (2) Employing AI in employment (3) Achieving economic sustainability and reducing inflation (4) Supporting financial inclusion and expanding financial services.

Addressing problems such as unemployment and inflation in the economy requires innovative and sustainable solutions that assume the ability to eliminate corruption. AI cannot play a major role in

achieving this by merely providing analytical and predictive tools that contribute to developing effective economic strategies. The human decision is from and to it, if and only if the parties of power are absent and two doctrines of development compete, one operational and one controlled. Where is the position of AI in achieving a future for scientific planning supported by addressing these issues? The realistic assumption of the unemployment-inflation problem proposes reviewing the feedback to them through the following steps:

- Unemployment/inflation balances clearly indicate the need to improve the business market and its leadership, economic sustainability, reducing inflation, and financial inclusion.
- On the other hand, labor and production turnover is the antidote to unemployment, and economic inclusion is the outlet for inflation and the path to the economy. Therefore, the continuation of comprehensive productive supply and balanced, non-excessive demand or effective active demand are the framework of economic policies (Channe, 2024; Xu, 2025). The focus of this study is limited to four mechanisms:

1. Improving the labor market / improving productivity
2. Promoting entrepreneurship / Promoting entrepreneurship and innovation
3. Achieving economic sustainability / reducing inflation
4. Supporting financial inclusion / expanding financial services

i. Improving Labor Market and Productivity

Two groups of factors, if combined, can lead to reducing unemployment rates, improving labor markets with improving economic productivity as well as promoting entrepreneurship and innovation.

6. *Improving Labor Market*

The primary mechanism assumed by the analysis is that "unemployment rates can logically be reduced by raising employment and work rates and increasing job opportunities from expanding markets. Job opportunities expand with increasing productivity in the labor market, and their source is the same labor force. This assumption is supported by another source that comes from employers, specifically from promoting entrepreneurship (Brice, 2024; Cheng et al., 2025; Su et al., 2024) with the continuation of economic prosperity driven by government salaries and the continuation of purchasing power among the public, so labor markets improve." Improving productivity and promoting entrepreneurship as the economy continues to flourish are three sources of reducing unemployment in Iraq. These aspects are worth considering.

How can the labor market have improved by employing AI in recruitment! Smart recruitment systems and retraining the workforce. In smart recruitment systems, i.e. taking advantage of digital recruitment, AI can used to create smart recruitment platforms that match the skills required in the labor market (Horodyski, 2023) with job seekers and available opportunities based on future trends in the labor market. By analyzing data related to employment, AI can help Iraqi companies quickly find the right talent, which contributes to reducing structural unemployment in Iraq by recommending educational paths or new skills that are in line with market needs. This helps reduce unemployment rates by facilitating the transition to jobs with increasing demand.

As for retraining the workforce, Iraq faces a problem in keeping up with technological transformations due to the lack of modern skills. AI can customize training programs targeted at Iraqi workers based on the needs of the labor market (Al-Qaisi, 2025). For example, training individuals in

fields such as information technology, programming, or data analysis can contribute to providing new job opportunities and reducing unemployment.

The second issue is training the workforce in future skills. Adaptive training supported by AI can acquire new skills that are in line with the requirements of the digital economy and allocate training programs that help workers (Morandini et al., 2023). These systems use data to analyze skills needs based on current trends in the labor market and then provide personalized learning paths that help reduce structural unemployment.

There is also rapid response to changes in industries as AI helps monitor changes in emerging industries and professions, allowing resources be directed more quickly to train individuals in the required skills.

7. Improving Economic Productivity

The state can help improve productivity through two means: automation and predictive analysis. Productivity can be enhanced from automation processes in industries such as manufacturing; AI can significantly improve productivity and automate repetitive and complex tasks. These technologies help reduce costs and increase efficiency, which contributes to stimulating economic growth and reducing inflation caused by lack of productivity (Himeur et al., 2023). On the other hand, AI can used in predictive analysis to improve supply chains and inventory management to achieve a higher level of economic efficiency, which leads to reducing costs and increasing productivity in general (Nweje & Taiwo, 2025). This can help reduce inflation caused by a shortage of goods and services in the market.

Improving the labor market by promoting entrepreneurship and innovation. The mechanism is that "labor markets can be improved from several sources, including job automation and by programming workforce training for future skills." Jobs can also automate and workforce training for future skills can be done with *technology and innovation, education and training, job quality, institutions and support for SMEs*. Innovative solutions can provide to support entrepreneurship in Iraq. For example, AI-powered platforms can create to facilitate access to finance for SMEs, and market analysis can do to provide recommendations on growth opportunities. This contributes to reducing unemployment by supporting new projects (Mindell & Reynolds, 2023). Then the *Intelligent Market Analysis*. AI can better help Iraqi companies understand market trends, whether in the local or international market. Through intelligent data analysis, companies can expand their scope and increase their revenues, which contributes to creating new jobs.

MECHANISM FOR ACHIEVING ECONOMIC SUSTAINABILITY TO REDUCE INFLATION

With initial rates of development, it is possible to stimulate economic sustainability in order to curb inflation while improving the total productivity of production factors and reducing inflation, so that the economy is on the path to innovative solutions to combat inflation. Sustainable development

with the trend to control inflation becomes crucial in this case, along with other factors in the next part of this topic.

Improving Economic Productivity and Reducing Inflation

AI can have used to improve the manufacturing sector in Iraq by automating industrial processes, reducing waste, or what known as smart manufacturing, and improving productivity. With improved productivity in factories, costs can have reduced and the supply of goods and services in the market can increased, which helps reduce inflation resulting from a shortage of supply.

Iraq suffered significant fluctuations in energy markets due to its reliance on oil. With energy and resource market analysis, strategies for managing natural resources and energy can have improved through data analysis and achieving higher efficiency in their use. This helps reduce production costs and thus reduce inflation resulting from price increases in energy and resources.

As for achieving economic sustainability and reducing inflation while achieving efficiency in resource consumption and helping to develop more efficient solutions in energy and natural resources consumption. The use of AI can contribute to agricultural or industrial technologies and their sustainability by improving production and reducing waste. Environmental analysis and improving environmental policies in Iraq contribute by analyzing data related to the impacts of industries on the environment. Policy support contributes to achieving a balance between economic development and environmental protection that can reduce inflation resulting from resource crises.

Innovative solutions to Combat inflation

Among these solutions is managing inflation using AI through techniques such as macroeconomic modeling and analyzing available data (Noble & Chidi). Innovative solutions can provide to improve price stability. For example, economic conditions that lead to price increases can predicted, and recommendations can made for government policies such as adjusting taxes or interest rates to reduce inflation. As well as analyzing energy and resource markets because one of the main factors contributing to inflation is the volatility of energy and resource prices (Shawon et al., 2024), AI can help governments and companies determine how to manage these fluctuations by improving energy consumption efficiency and finding alternative energy solutions.

Supporting financial inclusion and expanding financial services

The study assumes a fourth and final mechanism to support financial inclusion and expand financial services, which referred to as other factors earlier. The mechanism involves two aspects: analyzing the results of economic policies in Iraq and achieving economic inclusion (Yousif, 2016). The details are as follows.

Banking services in Iraq can be improved with AI, including expanding access to credit and financial services through digital banks, which enhances financial inclusion, especially in rural areas, as it helps individuals obtain financing to start their projects or improve their skills, which contributes to reducing rural unemployment that is transferred to urban areas. Through big data analysis, economic gaps in Iraq can identified between different geographical areas or sectors (Hassan, 2020), allowing the government or non-governmental organizations to direct resources more effectively to combat unemployment in the most affected areas.

ECONOMIC POLICY ANALYSIS

In general, economic policy simulations can estimate the effects of different economic policies on the macroeconomic, such as taxes, government support, or changes in interest rates, in order to help decision-makers assess the impact of policies before implementing them. These policies include cost-benefit analysis in analyzing the cost of implementing certain policies versus the potential benefits, which enhances decision-making based on realistic and informed data.

Economic Policy Analysis in Iraq

By simulating the results of different economic policies, such as reducing government support or amending taxes, to determine their impact on inflation and unemployment. The Iraqi government can test its hypothetical economic policies using AI before implementing them in reality, which contributes to reducing risks and achieving better results. Likewise, analyzing the effectiveness of government spending in analyzing data on public projects and government spending, shortcomings in the allocation of resources can identified (Ali, 2024). This allows government investments to directed more efficiently, which enhances economic growth and contributes to reducing unemployment.

a. Achieving Economic Inclusion

Big data can used to analyze economic gaps between different social groups or geographic regions, and these analyses help direct policies towards areas most affected by unemployment or inflation (Yousif, 2016). In achieving economic inclusion, providing smart financial services to facilitate access for individuals in remote or poor areas to financial services through digital banks or data-based credit enhances financial inclusion and reduces the negative impact of inflation on vulnerable groups.

b. Annex of Quantitative Framework: The Model

First: Addressing Unemployment in Iraq

To create a mathematical model to address unemployment in Iraq, a model has designed that considers the economic, social and political factors affecting the labor market. These steps for designing a mathematical model can BE used for this purpose:

1) **Defining the problem and variables (**Identifying the main variables that affect unemployment), such as Unemployment rate. Number of people able to work. Number of currently employed. Number of vacant jobs. Economic growth. Government spending on job creation. Level of education and training. Local and foreign investment.
2) **Formulating mathematical equations**

A. 1: Unemployment Equations Model

Procedure	Equation

Basic Equation for Unemployment Rate	U = rac() times 100
Economic Growth and Unemployment (According to Okun's Law)	Δ U = ~(G-G^*)
Economic Growth Rate Required to Maintain Stable Unemployment:	$L = L_0 + \alpha E$
Effect of Government Spending:	$T= T_0 + \gamma E_T$
Effect of Education and Training:	$V = V_0 + \Delta I$
Government or Private Spending on Education and Training.	$U_{t+1}=U_t- (\sim G+ \alpha E+ \gamma E_T+\Delta I)$
Investment:	P(P-L)*100 all time
Comprehensive Simulation Model	$L = L_0 + \alpha E$
	$T= T_0 + \gamma E_T$
	$V = V_0 + \Delta I$
	$U_{t+1}=U_t- (\sim G+ \alpha E+ \gamma E_T+\Delta I)$

Estimated time to growth: Reach actual growth. Where: Time (in years).
Each variable updated annually based on the policies followed.

3) Scenario analysis

- Use the model to analyze the impact of different policies:
- Increase government spending on job creation.
- Promote domestic and foreign investment.
- Improve the quality of education and training.

4) Model Testing

We use data on unemployment, economic growth, and investment in Iraq to verify the accuracy of the model.
We compare the model results with actual data.

5) Implementing the proposed policies

Applying policies based on the model results, such as improving investment in labor-intensive sectors (industry, agriculture).
Enhancing public-private partnerships.
This model provides a practical tool for analyzing the impact of policies on unemployment and making data-driven decisions.

Second: Addressing inflation in Iraq

To address the problem of inflation in Iraq, a mathematical model can build that focuses on the main economic factors that affect inflation, such as monetary policies, fiscal policies, supply and demand, and exchange rates. This model can design in the following steps:

1) Identifying the main variables

Economic variables: 1. Inflation rate. 2. Money supply. 3. Real GDP. 4. Price level. 5. Consumption level. 6. Exchange rate. 7. Investment. 8. Government spending. 9. Inflationary expectations. 10. Interest rate.

2) Formulating mathematical equations

A. 2: inflation Equations Model

Procedure	Equation
a) Aggregate demand equation:	AD = C + I + G + (X - M)
b) Supply and demand equation in the money market:	M = P \ċ L(Y, r)
c) Fisher's equation for the effect of money supply:	MV = PY
d) Inflation equation based on expectations:	T = \þ + \ß (AD - AS) + \ε

Sensitivity coefficient between the gaps between supply and demand.	*External shocks (such as oil price fluctuations).*
e) Effect of exchange rate on inflation: Current exchange rate.	$T = T_0 + \backslash\Delta (E_t – E_{t-1})$
f) Monetary policy equation: Target inflation rate	$r = r_0 + \backslash\Phi (T - T\text{^}*)$
3) Comprehensive model for determining inflation	
$T_{t+1} = \backslash þ + \backslash ß (C + I + G + (X - M) - AS) + \backslash \Delta (E_t - E_{t-1}) + \backslash\Phi (T - T\text{^}*)$	

3) Scenario and policy analysis

Monetary policies:

Increase interest rate (): to reduce money supply and control inflation.

Reducing money supply (): using central bank tools such as raising the reserve requirement ratio.

Fiscal policies:

Reduce government spending () to reduce aggregate demand.

Improve tax revenues to reduce dependence on government borrowing.

Improve productivity:

Increase real GDP () to improve aggregate supply.

Stabilize exchange rate:

Enhance cash reserves and control local currency fluctuations.

4) Model testing

Using actual inflation data in Iraq to verify the accuracy of the model.

Run the model to analyze the impact of different policies (raising interest rate, reducing government spending, fixing the exchange rate).

5) Practical implementation

Apply the policies that the model has shown to be most effective.

Monitor the impact of interventions periodically and adjust the model as needed.

Conclusion: This mathematical model helps understand the mechanisms of inflation in Iraq and design sustainable fiscal and monetary policies to address it, focusing on key factors such as government policies, exchange rate, and money supply.

Third: Joint simultaneous treatment of inflation and unemployment in Iraq

To address the problems of inflation and unemployment simultaneously in Iraq, a mathematical model can build that considers the interactive relationship between them, which often known as the "Phillips curve," which shows the inverse relationship between inflation and unemployment. However, the local economic dynamics in Iraq must consider, including dependence on oil, fiscal and monetary policies, and the structure of the labor market.

1) Determining variables:

Main variables Unemployment rate. Inflation rate. Government spending. Money supply. Real GDP. Inflationary expectations. Interest rate. Exchange rate. Aggregate supply. Aggregate demand.

2) Formulating mathematical equations

Secondary variables: Investment. Consumption. Exports and imports.

A.3: Joint inflation and Unemployment Equations for Iraq

Procedure	**Equation**
a) Unemployment equation (modified Phillips curve):	$U_t = U_{t-1} - \backslash\alpha (T - \backslash þ)$
Inflationary expectations.	$T_t = \backslash þ + \backslash\beta (AD - AS) + \backslash\varepsilon$

b) Inflation equation (supply and demand)	
External shocks (such as oil prices).	$AD = C + I + G + (X - M)$
c) Aggregate demand equation:	$AS = f(Y, E, T)$
d) Aggregate supply equation:	$r = r_0 + \Phi (T - T^*)$
e) Monetary policy equation:	$\þ_t = \gamma T_{t-1} + (1 - \pi) \þ_{t-1}$
f) Inflationary expectations equation:	
3) Inflation-unemployment integration model	
	$$\begin{aligned} T_{t+1} &= \þ_t + \ß (C + I + G + (X - M) - AS) + \varepsilon \\ U_{t+1} &= U_t - \alpha (T - \þ_t) \\ \þ_{t+1} &= \gamma T_t + (1 - \pi\pi) \þ_t \\ r &= r_0 + \þ (T - T^*) \\ \End\{aligned\} \end{aligned}$$

3) Design of Common Policies

Monetary policies:

Increase interest rate: to reduce inflation by reducing money supply, while monitoring its impact on unemployment.

Reducing money supply: using central bank tools such as open market operations.

Fiscal policies:

- Increase government spending: to create direct job opportunities, but reduce inflation using productive investments.
- Improve productivity
- Increase aggregate supply: by improving infrastructure and developing productive sectors such as industry and agriculture.

Stabilize exchange rate

Enhance foreign reserves to reduce the impact of exchange rate fluctuations on inflation.

4) Analyze results using scenarios

Using the model to analyze the impact of different policies:

• Scenario 1: Increase government spending while fixing the interest rate.

• Scenario 2: Raise interest rate to reduce inflation.

• Scenario 3: Improve aggregate supply and increase investment.

5) Model Test

Apply the model to Iraqi economic data including unemployment rates, inflation and exchange rate.

Evaluate the effectiveness of policies by comparing results with reality.

Conclusion: The interactive model between inflation and unemployment shows the need to strike a delicate balance between fiscal and monetary policies. Iraq can reduce inflation and increase employment opportunities through policies that enhance productivity, maintain exchange rate stability, and effectively manage inflationary expectations.

Fourth: A Joint Mathematical Model Addressing Inflation, Unemployment, and Corruption in Iraq

To create a mathematical model to address the problems of inflation, unemployment, and corruption together in Iraq, a comprehensive model must be developed that considers economic factors (such as

inflation and unemployment) and institutional factors (such as corruption). The relationship between these problems is complex, but can be modeled using equations that express the mutual effects.

1) Identifying Variables

Economic variables: Inflation rate. Unemployment rate. Real GDP. Government spending. Money supply. Interest rate. Exchange rate. Aggregate supply. Aggregate demand. Consumption. Investment.
Institutional variables: Corruption index (the higher the index, the more corruption).

Efficiency of government institutions. Effect of government spending. Impact of corruption on investment.

2) Formulating mathematical equations

A. 4: Joint Inflation, Unemployment, and Corruption Model for Iraq

Procedure	Equation
a) Inflation equation:	$T_t = \þ+ \β (AD - AS) + \ε$
External shocks (such as oil fluctuations).	
b) Unemployment equation (modified Phillips curve):	$U_t = U_{t-1} - \α (T - \þ)$
Inflationary expectations.	
c) Aggregate supply and demand equation:	AD = C + I + G + (X - M) AS = f(Y, E, T)]
d) Corruption impact equation on the economy:	
1) Corruption impact on investment	$I = I_0 - \γ V$
Level of corruption:	
2) Corruption impact on efficiency of government spending:	G_{\text{effective}} = G \ċ (1 - \ßV)
e) Corruption-unemployment-inflation integration equation:	
f) Monetary and fiscal policy equation:	
1) Monetary policy (inflation stabilization):	U_t r=r_0+\þ(T-T^*)=U_{t-1}-\α(T-\þ)+\ΔV
2) Fiscal policy (anti-corruption):	
g) Monetary and fiscal policy equation:	$T_t = \þ + \ß (AD - AS) + \ε + \~ V$
1) Monetary policy (inflation stabilization):	
2) Fiscal policy (anti-corruption):	$r = r_0 + \ þ (T - T^*)$
Effect of economic growth on reducing corruption.	\Δ V = -\λ (\αG + \Ķ Y)
3) Comprehensive model	
	\begin{aligned} T_{t+1} &=\þ+\ß C+I+G+(X-M)-AS) +\ε+\~V\\ U_{t+1} &= U_t - \α (T - \þ) + \Δ V \\ V_{t+1} &= V_t - \λ (\αG + \Ķ Y) \end{aligned}

3) Analysis of Joint Policies

Monetary policies:
Raise interest rates to control inflation, while monitoring their impact on unemployment.
Fiscal policies:

Increase government spending on infrastructure projects, while improving administrative efficiency to reduce the impact of corruption.
Reducing institutional corruption by activating transparency and accountability.
Enhancing productivity:
Investing in productive sectors to increase aggregate supply.
Improving the business environment to attract investment.
Institutional reform:
Improving the effectiveness of government institutions.
Enhancing oversight of government spending.

4) Model Testing

Using Iraq data on inflation, unemployment, and corruption to estimate coefficients ().
Applying different scenarios such as reducing corruption or adjusting fiscal and monetary policies.

5) Expected Outcomes

Reducing inflation and unemployment rates simultaneously.
Reducing corruption and increasing the efficiency of government spending.
Improving the investment environment and increasing GDP.
Conclusion: All equations via Chat GPT. This model provides a mathematical way to explain the relationship between inflation, unemployment, and corruption, helped in designing integrated policies that address these problems altogether.

CONCLUSION

With the logical progression of the macroeconomic theory, the general trend of the economic problem can analyze by the policy maker, and AI can process it as an interactive machine by referring to published texts for macro analysis, theories, experiments and applications, and suggests a quote from the literature. As for how to process, it is a human decision without a machine. From the work topics, it suggests, knows and predicts the methods of solutions, but it does not plan, program or guarantee the success of the application.

Limitations and Future Research directions

1. This fact confirmed by the first section on scientific research in the humanities and social sciences. Rather, it is possible to obtain information and analyze statistical data as in the second section and works to accelerate the processes of scientific research, analysis and analysis of big data.

2. It addresses the problems of economic development and improving productivity at the level of macroeconomic analysis as in the third section by improving the overall view or comprehensive analysis of the economy and predicting economic trends and improving performance. Therefore, AI can used to address problems such as unemployment, inflation and others as explained in the fourth section, with reducing the investment corruption index and government spending. All of them work with improving markets and their sustainability and with the economic inclusion of financial and economic policies

3. AI offers tremendous potential to accelerate and develop multidisciplinary solutions in economic development by integrating theoretical tools with various economic fields, performance can improve, innovation can be stimulated, sustainable development can be supported, and efficiency can be enhanced in various sectors. This helps governments and businesses make informed decisions that support sustainable economic growth and enhance societal well-being. It can be a powerful tool in addressing economic challenges such as unemployment, inflation, and corruption together through equation analysis, improving productivity, developing skills, supporting smart government policies, and contributing to finding effective and sustainable solutions to stimulate economic growth and reduce social gaps.

4. Iraq faces multiple economic challenges, most notably corruption, then unemployment and inflation, which affect its social and economic stability. AI can be a powerful tool in addressing these issues through a set of thoughtful solutions that leverage data and technology to improve the effectiveness of economic policies, enhance growth, and address institutional and economic problems in Iraq, by improving the effectiveness of economic policies, enhancing productivity, and providing targeted educational and training solutions for the workforce. By improving the use of resources, supporting small businesses and achieving efficiency in the government sector. AI can contribute to creating a more sustainable and growing economic environment, but it stops at applying problem-solving solutions. Predicts unemployment rates and machine learning techniques to analyze big economic data such as employment levels, economic growth rates, and changes in different industrial sectors. Predictive models can built to forecast future unemployment based on current economic variables, thus enabling governments and companies to take proactive measures to reduce unemployment rates.

5. Patterns that may indicate rising or falling inflation and inflationary expectations can identified based on market data such as commodity and service prices and interest rates. This allows for data-driven recommendations on how to deal with inflation, such as adjusting fiscal policies or taking measures to stimulate economic growth.

6. Direct treatment of these problems depends first on the decisions of the human planner and his goals that he sets in light of policies and reality. AI is a tool and a means of implementation and not a guaranteed haven for achieving goals because these goals are entirely human and social. AI has developed the required mathematical models and the mathematical framework, made proposals, and drawn up a work plan. Then what!

7. It has often pointed to many trends that originate from humans and that we use data on unemployment, economic growth, and investment in Iraq to verify the accuracy of the model. We compare the results of the model with actual data. We apply policies based on the model results such as improving investment in labor-intensive sectors (industry and agriculture) and enhancing public-private partnerships.

8. He suggested applying monetary policies to increase interest rates to reduce money supply and control inflation. Also reducing money supply using central bank tools such as raising the reserve requirement ratio. In addition, fiscal policies by reducing government spending to reduce aggregate demand and improve tax revenues to reduce dependence on government borrowing. He emphasized improving productivity and increasing real GDP to improve aggregate supply. As for exchange rate stability, enhancing cash reserves and controlling local currency fluctuations.

9. In testing the model, he suggested using actual inflation data in Iraq to verify the accuracy of the model, run the model, and analyze the impact of different policies such as raising the interest rate, reducing government spending, and stabilizing the exchange rate. In practical implementation, he applied the policies that the model showed to be the most effective. Monitor the impact of interventions periodically and modify the model as needed. In conclusion, he said that this mathematical model helps understand the mechanisms of inflation in Iraq and design sustainable fiscal and monetary policies to address it, focusing on key factors such as government policies, exchange rate, and money supply. Finally, in designing joint policies, he emphasized that monetary policies require increasing the interest rate to reduce inflation by reducing the money supply while monitoring its impact on unemployment and reducing the money supply using central bank tools such as open market operations.

10. In financial policies, he suggested: 1) Increasing government spending to create direct job opportunities, but with reducing inflation using productive investments 2) Improving productivity 3) Increasing aggregate supply by improving infrastructure and developing productive sectors such as industry and agriculture. As for stabilizing the exchange rate and enhancing foreign reserves to reduce the impact of exchange rate fluctuations on inflation, all of these are the treatments of the planner and analyst, not the machine.

11. In the analysis of joint policies, he stressed that monetary policies require raising the interest rate to control inflation, while monitoring its impact on unemployment. In financial policies, increasing government spending on infrastructure projects while improving management efficiency to reduce the impact of corruption and reduce institutional corruption by activating transparency and accountability. He noted enhancing productivity by investing in productive sectors to increase aggregate supply and improve the business environment to attract investment. With institutional reform, improving the effectiveness of government institutions and enhancing oversight of government spending.

12. When testing the model, using Iraq's data on inflation, unemployment and corruption to estimate transactions and apply different scenarios such as reducing corruption or amending fiscal and monetary policies. With the expected results, reducing inflation and unemployment rates simultaneously, reducing corruption, increasing the efficiency of government spending, improving the investment environment and increasing the gross domestic product. In

conclusion, he stressed that this model provides a mathematical way to explain the relationship between inflation, unemployment and corruption and helps in designing integrated policies that address these problems together.

It is important to emphasize that the success of the application critically depends on the implementation of effective institutional reforms, the clear assignment of responsibilities, and the precise analysis and utilization of accurate data. The success of the application depends on the implementation of effective institutional reforms and accurate analysis of data by humans. Therefore, the solutions are not reciprocal, but rather complementary, cooperative and compatible between humans and machines, relying on readiness for development, policies, implementation and follow-up of the application for the purpose of correction and necessary decisions, all from humans to them.

FUNDING

This research received no external funding.

ACKNOWLEDGEMENTS

The author would like to thank the administrative and technical staff at Al Noor University for their support during the preparation of this manuscript.

CONFLICTS OF INTEREST

The authors declare no conflict of interest. The funding sponsors did not participate in the study's design, data collection, analysis, interpretation, manuscript writing, or decision to publish the results.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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