

ARTIFICIAL INTELLIGENCE AS A TOOL FOR EVIDENCE - BASED ECONOMIC POLICY MAKING

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ABSTRACT

Artificial Intelligence (AI) is transforming the landscape of economic policymaking by enabling data-driven, evidence-based decisions. Traditional policy approaches often rely on lagged indicators, limited datasets, and simplified econometric models. AI, with its capacity to process large-scale, real-time data and uncover complex patterns, offers governments the ability to design more responsive, accurate, and efficient policies. This paper explores how AI enhances economic policymaking in areas such as macroeconomic forecasting, fiscal policy, labour markets, and welfare distribution. It also examines challenges including algorithmic bias, data privacy, and governance risks. The study concludes that while AI holds immense potential to improve policy effectiveness, robust regulatory frameworks and ethical safeguards are essential for its responsible adoption.

1. INTRODUCTION

Economic policymaking has traditionally depended on statistical models, historical data, and expert judgment. While these methods have been effective, they often struggle to capture the complexity and dynamism of modern economies.

Artificial Intelligence introduces a paradigm shift by enabling:

- Real-time data analysis
- Predictive modelling with higher accuracy
- Adaptive policy frameworks

Governments across the world are increasingly integrating AI into policymaking processes to improve efficiency, transparency, and outcomes. This paper investigates how AI supports evidence-based economic policy and evaluates its implications.

1.1 USES OF AI IN FORMULATIONS OF ECONOMIC POLICY

Artificial Intelligence (AI) brings a significant upgrade to how economic policies are designed, moving them from intuition-heavy decisions to **data-driven, adaptive systems**. Here are the key advantages, explained with clarity and policy relevance:

1. Better Data Analysis and Accuracy

AI can process massive datasets (big data) far beyond human capacity. It identifies hidden patterns in:

- Inflation trends:-I can analyse real-time price data from thousands of products across regions, including online prices, supply chain disruptions, and commodity

fluctuations.

It can also incorporate factors like weather conditions, global oil prices, and demand shifts.

- Consumption behaviour:-AI studies spending patterns using digital transactions, helping governments understand changes in demand across income groups.
- Investment flows:-It tracks domestic and foreign investments, identifying sectors attracting capital and detecting early signs of economic slowdown or overheating.

This leads to **more accurate policy decisions** compared to traditional econometric models.

2. Real-Time Economic Monitoring

1. Real-time GDP estimation using indicators like electricity usage, mobility data, and online activity
2. Instant tracking of employment trends through job portals and payroll data
3. Early detection of economic shocks such as pandemics or financial disruptions.

3. Improved Forecasting

AI models, especially machine learning, improve the accuracy of economic predictions.

- Predict inflation, GDP growth, and unemployment more reliably
- Identify early warning signs of recessions or financial instability
- Simulate outcomes of different policy choices before implementation

4. Targeted and Efficient Policy Design

AI enables precision policymaking by identifying exactly who needs support.

- Pinpointing beneficiaries for subsidies and welfare schemes
- Customizing programs based on income, geography, and vulnerability
- Reducing leakages and corruption in public spending

5. Enhanced Tax Collection and Reduced Evasion

- Detects unusual or suspicious financial transactions
- Identifies patterns of tax evasion and fraud
- Automates compliance checks and reporting

6. Cost Efficiency and Automation

AI reduces administrative burden by:

- Automating routine policy processes
- Streamlining data collection and analysis
- Minimizing human errors. This leads to **lower governance costs** and faster execution.

7. Evidence-Based Decision Making

AI strengthens the principles of evidence-based policymaking by:

- Continuously evaluating policy outcomes

- Providing feedback loops for improvement
- Supporting data-backed decisions rather than political guesswork

8. Better Crisis Management

During economic crises, AI can:

- Quickly analyze the situation
- Suggest optimal interventions
- Predict recovery patterns

Example: AI was widely used during the **COVID-19 pandemic** to assess economic impact and guide stimulus policies.

9. Financial System Stability

AI helps regulators:

- Monitor banking systems
- Detect fraud and systemic risks
- Improve financial supervision. This reduces chances of crises like the **2008 financial crisis**.

10. Supports Inclusive Growth

AI can help policymakers:

- Identify underserved populations
- Design inclusive economic programs
- Bridge inequality gaps

This ensures **more equitable development outcomes**. AI enhances economic policy formulation by making it **more precise, responsive, efficient, and inclusive**. However, these advantages are strongest when combined with proper governance, ethical safeguards, and human oversight.

2. CONCEPTUAL FRAMEWORK

2.1 Evidence-Based Policymaking

Evidence-based policymaking refers to the systematic use of data, empirical research, and analytical tools to guide policy decisions. It emphasizes:

- Measurable outcomes
- Data-driven evaluation
- Continuous feedback loops

2.2 Role of Artificial Intelligence

- Machine learning for prediction and classification
- Natural language processing for policy analysis
- Big data analytics for large-scale insights.

3. APPLICATIONS OF AI IN ECONOMIC POLICYMAKING

3.1 Macroeconomic Forecasting

AI models can analyze high-frequency data (e.g., satellite imagery, financial transactions, mobility data) to:

- **Predict GDP growth:**

Predicting economic growth isn't about a single formula—it's more like combining several signals to estimate how an economy might perform in the future. Economists typically look at a mix of structural factors, short-term indicators, and global conditions.

- **Monitor inflation trends**

Monitoring inflation trends is essential for predicting economic growth because inflation directly affects purchasing power, interest rates, and investment decisions.

- Provide real-time economic indicators (nowcasting)

3.2 Fiscal Policy and Public Finance

- **Detect tax evasion and fraud**

Detecting tax evasion and fraud is less about one trick and more about combining data analysis, behavioral signals, and enforcement. Governments build systems that flag suspicious patterns and then investigate further.

- **Optimize revenue collection**

Optimizing revenue collection isn't just about collecting more taxes—it's about doing it efficiently, fairly, and with minimal friction so economic activity isn't discouraged.

- Improve budget allocation through predictive analytics

3.3 Labour Market Analysis

AI tools can:

- **Forecast employment trends**

Forecasting employment trends means anticipating how jobs, wages, and workforce participation will change over time. Like economic growth, it relies on combining data, patterns, and policy signals

- **Identify skill gaps**

Identifying skill gaps means figuring out where the workforce's current abilities don't match what employers actually need. It's a key step for improving employability and aligning education with economic demand.

- Assist in designing targeted employment policies

3.4 Welfare and Social Policy

AI is starting to reshape welfare and social policy—not by replacing governments, but by making systems more targeted, efficient, and responsive. That said, it comes with real risks if not designed carefully.

3.5 Financial Regulation

Regulators use AI to:

- Detect anomalies in financial markets
- Monitor systemic risks
- Strengthen compliance mechanisms.

4. CASE STUDIES

4.1 India

- Use of AI in tax compliance (e.g., data analytics in GST systems)
- AI-driven targeting in welfare schemes
- Integration with digital public infrastructure

4.2 United States

- AI-based labour market analytics
- Use of big data for economic forecasting

4.3 China

AI in large-scale economic planning. Integration of AI into financial systems and credit scoring.

5. BENEFITS OF AI IN ECONOMIC POLICY

- **Improved Accuracy:** AI models outperform traditional forecasting methods
- **Real-Time Decision Making:** Policies can adapt quickly to changing conditions
- **Cost Efficiency:** Automation reduces administrative costs
- **Better Targeting:** Policies reach intended beneficiaries more effectively.

6. CHALLENGES AND RISKS

6.1 Data Privacy and Security

Large-scale data use raises concerns about:

- Personal data protection
- Cybersecurity risks

6.2 Algorithmic Bias

AI systems may reinforce:

- Existing inequalities
- Discriminatory outcomes

6.3 Transparency and Accountability

- Black-box models make it difficult to explain policy decisions
- Lack of accountability in automated systems

6.4 Institutional Readiness

- Limited technical expertise in government institutions

- Infrastructure constraints in developing economies.

7. POLICY RECOMMENDATIONS

- 1. Develop Ethical AI Frameworks**
Governments must establish guidelines for fairness, accountability, and transparency.
- 2. Strengthen Data Governance**
Ensure secure, high-quality, and accessible data systems.
- 3. Capacity Building**
Train policymakers and institutions in AI and data analytics.
- 4. Public-Private Collaboration**
Encourage partnerships for innovation and implementation.
- 5. Regulatory Oversight**
Establish mechanisms to monitor AI-driven policy decisions.

8. CONCLUSION

Artificial Intelligence represents a powerful tool for advancing evidence-based economic policymaking. By enabling real-time analysis, improving forecasting accuracy, and enhancing policy targeting, AI can significantly improve governance outcomes. However, its adoption must be accompanied by strong ethical standards, transparent systems, and institutional readiness. The future of economic policy lies in the balanced integration of AI technologies with human judgment and democratic accountability.

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