Editorial

Challenges and stakes of artificial intelligence in economic sciences

Retos y desafíos de la inteligencia artificial en las ciencias económicas

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The increasing presence of artificial intelligence (AI) in economics and finance brings promising opportunities and formidable obstacles. It is vital to conduct an in-depth analysis of the challenges and opportunities that artificial intelligence brings in this field as we get closer to becoming a society increasingly driven by technology.

One of the critical challenges in applying artificial intelligence in economic sciences is the access and quality of data. As Acemoglu and Autor (2011) point out in their article "Skills, Tasks, and Technologies: Implications for Employment and Earnings", artificial intelligence relies on analyzing large data sets to obtain valuable information (Matysiak et al., 2023). However, economic data is often scattered and difficult to collect, which can affect the accuracy and effectiveness of AI models. Additionally, data quality may be biased, raising ethical concerns and potentially perpetuating existing inequalities (O'Neil, 2016; Chiou & Lee, 2023).

Another significant obstacle to overcome in the field of economic sciences is interpreting the findings of models that use artificial intelligence. Because economic occurrences are notoriously challenging to predict, it is essential to comprehend how AI models arrive at their findings. On the other hand, many of these models are considered black boxes, making their interpretation and explanation challenging (Makridakis et al., 2019). Artificial intelligence models must be transparent and easily interpretable to ensure trust and adoption by economic specialists and decision-makers.

The issues posed by artificial intelligence in the economic sciences are also heavily focused on ethical considerations. Algorithms based on artificial intelligence can considerably impact the distribution of resources, the selection of investments, and the regulation of markets. Ensuring 4these algorithms are just and impartial and obey fundamental ethical principles (Jobin et al., 2019). In economics, a lack of appropriate regulation can also lead to the exploitation and abuse of artificial intelligence, which can have negative consequences (Brynjolfsson & McAfee, 2017).

Despite the obstacles, artificial intelligence also presents potential in the business world that has never been seen before. It is possible to improve decision-making and stimulate economic growth by doing real-time analysis of enormous amounts of data and making predictions about economic trends (Varian, 2014; Yoo et al., 2023). Additionally, artificial intelligence can assist in optimizing resource allocation and identifying previously concealed patterns and linkages in economic data (Chui et al., 2016; Divedi et al., 2023).

A strategy that emphasizes cooperation and draws on expertise from various fields is required to handle these issues effectively. In order to ensure the growth of artificial intelligence in economics in a responsible manner, a collaboration between data scientists, economists, ethicists, and policymakers is necessary. In addition, continuing investments in research and development are necessary in order to enhance data collecting and analysis methods and to construct AI algorithms that are more ethical and transparent.

In addition, robust regulatory frameworks are needed that address the ethical, legal, and privacy issues associated with artificial intelligence in economics. These frameworks should promote

equity and non-discrimination while fostering innovation and economic progress (Nogueiro et al., 2022). The active participation of stakeholders, including citizens, in formulating policies and regulations is also essential to ensure fair and equitable implementation of artificial intelligence in the economic sphere (Stilgoe et al., 2013).

Giacomini & White (2006) conducted a relevant study in this field entitled "Tests of Conditional Predictive Ability". The authors applied artificial intelligence techniques, such as neural networks, to predict GDP growth in the United States. They compared the performance of artificial intelligence models with traditional econometric models and found that neural networks provided more accurate and reliable forecasts. This example demonstrates how artificial intelligence can overcome conventional approaches' limitations and improve economic forecasting's accuracy.

Another use of artificial intelligence successfully implemented in economics are algorithmic trading and high-frequency trading. The application of artificial intelligence algorithms in algorithmic trading allows for split-second judgments to be made regarding the purchase and sale of financial assets. Artificial intelligence algorithms can potentially improve market liquidity and efficiency, but they also pose regulatory and financial stability challenges, according to a study conducted by Hendershott et al. (2011). This study examined the impact that high-frequency trading has on the stock market.

By way of final considerations, artificial intelligence presents fundamental challenges and stakes in the economic sciences, but it also offers exciting opportunities to improve decision-making and economic development. It is essential to address the challenges related to data, interpretation of results, and ethics while making the most of the potential of artificial intelligence in this field. With a collaborative and multidisciplinary approach, we can guarantee a responsible development of artificial intelligence in economic sciences and move towards a more efficient, equitable, and sustainable economy.

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