The Intersection of Artificial Intelligence and Economics: A Sociological Approach to Ethical Decision-Making

Challoumis, Constantinos

National and Kapodistrian University of Athens

15 January 2025

The Intersection of Artificial Intelligence and Economics: A Sociological Approach to Ethical Decision-Making

Abstract: The relationship between artificial intelligence (AI) and economics has been both complex and varied, and it is only becoming ever more so as technology advances . Given the extensive economic implications of AI, natural and expected integration is that AI economic systems and decision-making processes, inevitably leading to the re-conception of both. The complexity of the intertwining relationship is being fed back into AI and economic analyses, leading to latent understandings. Accordingly, it is of growing importance to approach AI from a sociological perspective, as the implications for economic systems are diverse and can have broad, layered consequences.

Keywords: AI, sociology, ethical decision-making

1. Introduction to the Intersection of AI and Economics

As AI becomes more sophisticated, it is clear that it has the capacity to impact economic markets on multiple different levels. Broad economic systems are interconnected and multifaceted, and while basic functions could be initially coded, broader understandings may never be truly grasped. This is where a cloud over AI and economic treatments can become a broader storm affecting all such analyses. AI itself has not been fully explained. In this way, an appreciation of economic systems is fundamental to addressing emerging issues pertaining to AI treatments . This essay is divided into two foundational parts: the first consists of broader treatments of AI and economics (focusing on points of difference, intersections, and challenges), preparing the ground for the second part, which will consist of more focused analyses on three aspects of AI, which may lead to novel economic paradigms. Broadly considered then, this framework is both a response and reflection on the growing discipline of AI and economics and an exploration of what could come at their intersection not only moving forward but also in response to more comprehensive understandings. Ethical considerations will be interspersed throughout the development of a treatment, those implications often only appreciated through sociological layers of analysis. All of these are to be treated here with the expectation of ongoing development and broad reconsideration.

1.1. Defining Artificial Intelligence and Economics

Artificial intelligence has given machines the ability to think and react like humans (Marwala & Hurwitz, 2017). This ability falls into the processing and interpretation of data and the ability to draw conclusions and make decisions based on that data. Economics, on the other hand, is a field of study concerned with how individuals, groups, and organizations make decisions about deploying resources, time, and money. The

notion of economics is to determine how individuals create the ideal balance of, or efficiently distribute, finite resources and expenditures. This definition includes a thought to financial, social, and industrial exercises. The reasoning is focused on the stringency with which assets are distributed. The main objective of the discipline is to improve production and commercial efficiency. At a more public level, the hypothesis can be used to investigate unique economic patterns, for example, how revenues are allocated into supplies, goods, and related businesses, or how credits are established, or option pricing approximately the corresponding financial market. At a regulatory point of view, the economy is usually used to investigate federal, provincial, and metropolitan budgets. This issue has the potential to assist in understanding, foretelling, and controlling the local and worldwide economies.

2. The Role of Sociology in Ethical Decision-Making

The proliferation of artificial intelligence within economic practices is transforming how macroeconomic and social processes operate and how demands for value creation are organized. Numerous researchers predict that widespread automation in the near future will lead to a replacement of labour by AI, especially in sectors such as transportation, finance, and industry. Consequently, this translates into changes in working conditions and the profound reconfiguration of entire sectors of activity. Where are these transformations going to lead us? This question fuels a contentious debate between those who suggest the emergence of a workless society, thus underlining the importance of implementing a universal basic income and the establishment of social rights decoupled from the idea of work centrality, and those who warn against the increasing processes of precarization and dispossession.

However, ethical reflections are generally outside the scope of these works. When ethical issues are discussed, the debate usually revolves around legal matters such as transparency, accountability, and fairness of algorithms. While legitimate, these problematic ethical issues risk losing sight of the societal consequences of AI, which lead to structural changes in how social value is created, materialized, and distributed. In this perspective, we contend that a sociological approach of technical choices within capitalism is key to investigate their business models, their influence on the social organization of value, and their consequences in terms of norms, institutions, and shared representations. This relatively unexplored literature questions the socio-economic and political conditions of the development of AI just as much as the forms of regulation to consider.

2.1. Ethics and Values in Sociological Perspectives

Ethical and value-based decision-making has been central to human societies throughout development as it directs and regulates societal interactions. However, what constitutes ethical behaviour has been approached differently by different sociological theories: While functionalism understands ethics as a unified value system in a society, subcultural

theory accounts for varying value perspectives concerning the ethical nature of the same action, based on membership in different social groups. Furthermore, symbolic interactionism sees ethical behaviour as emergent in situational contexts – emphasizing opportunities and moral attitudes towards certain actions. By analysing the developing inclusion of AI algorithms in economic processes, a computational understanding of these sociological premises can be taken to create a decisional framework for economic applications of AI. The computational model unites cultural, structural and individual influences on the decision-maker, weighting individual considerations with respective group values of subcultures active in a social context. This computationally realigns symbolic interactionism's focus on dynamics between individual and situational ethics, acting as a first step to translate sociological theories to economic AI applications (Royer, 2020). However, this theoretical translation also provides an understanding of the complications ensuing from the interaction of computational and theoretical premises as simplifications of a cultural, historically grounded phenomenon. The most important insight driven forward is the societal variabilities regarding ethical standards and values that shape the perception of an economic circumstance or action as ethical or not. Values, and thus ethical considerations, are highly dynamic, moulded by an innumerable amount of factors including social interactions, institutional arrangements and alterations, and the prevailing historical contexts thereof. This highly malleable variable implies societal value formations that differ immensely based on the culture and societal position, ranging from local community ethics to professional group values. Operational principles based on a compu-sociological model could easily clash with the value-based understandings of those affected by the use of such AI technology (C. Müller, 2020). To understand why ethics and cultural values might surprisingly clash with potential drawdowns from recent technological developments in AI, it is important to understand ethical and economic expectations regarding routine practices. Complete oversight for both ML practitioners and economic actors is not guaranteed, hence economic strategies questioned from an ethical standpoint could be classified as decisionsupport mechanisms from an economic viewpoint.

3. Ethical Considerations in AI Development

Artificial intelligence is a multi-faceted technological achievement that wonderfully complements other achievements of man whilst creating the potential for many other accomplishments. It has the power to change economies, transform how societies operate and reform the human condition, all in ways that other technologies have not. From an economic standpoint, artificial intelligence creates a new understanding of productivity and economic growth which is essential for the formulation of policy. Such policy needs to equally support the improvement of technology, encourage its diffusion and ensure against its harmful effects, in order to have any hope of realising these potential economic benefits. Laws, or even national governments, may not be able to control artificial intelligence entirely, but they have a role to shape and to direct its development;

and as such they must be aware of the comprehensive import of the technology too. Given the profound changes to society brought about by artificial intelligence as much as any economic progress, the social consequences of the application of artificial intelligence must be thoroughly assessed and addressed. Undoubtedly, there are much discussed legal and ethical considerations surrounding certain applications of artificial intelligence. There are perhaps wider sociological implications of the final breakthrough than is currently being considered: of privacy and data use, of disparities between social classes and countries and of the role of artificial intelligence in politics.

3.1. Bias and Discrimination in AI Systems

Just say you're alone walking down a quiet side street at night when a police officer pulls up in an unmarked car and stops you. It could be harassment, or it could be legitimate law enforcement, but how can you tell the difference? Maybe there are a few different factors, but what's for certain is that determinative of the relationship between you and the officer—at least in the first instance—is a hi-tech tool s/he is using, a piece of Artificial Intelligence (AI) software. This part two of a series that examines the sociological and ethical aspects of the intersection between AI and economics. This part in particular explores that intersection from the standpoint of individual ethical decision-making—the choice made on a street like the one described above, when the success of that choice may well hinge on fairness and justice (Ferrer et al., 2020). A central feature of this critical sociological analysis is an interrogation of the widespread assumption—that any ethical issues embedded in AI are exclusively related to their effects. Leaving aside the obviously paternalistic nature of regarding ethics merely to concern oneself with the proper functioning of material goods, this viewpoint also ignores the fact that the production and use of AI systems has a social context. This means that in reality AI systems can be—and all too often are—highly unethical before they have any effects at all. Still, this dominant view does provide a useful starting point from which to unravel the layers and strata of sub-optimal ethics that can accrue around AI technologies, especially from within those disciplines that continually fan the flames of the information revolution.

4. Sociological Frameworks for Ethical AI Design

Artificial intelligence (AI) is rapidly transforming how society interacts with the world. Without doubt, the potential benefits offered by AI technologies are vast. Nevertheless, whether AI technologies foster a more just world is not self-evident. Policy makers and scholars are calling for structures to be put in place to ensure artificial intelligence will be more ethically designed. While a number of established ethical approaches already streamlined consideration of ethical concerns in AI development and implementation, these currently more technical approaches should be augmented with sociological frameworks to ensure that AI systems help to serve a broad social good. It is argued that this can be best achieved by fostering innovative development of AI systems that are in

the first instance conceived in true partnership with those who have a stake in the technology (Vakkuri et al., 2019).

To avoid furthering inequalities or harming democracy and society, it is necessary to encourage more sociological perspectives on ethics in the application and design of algorithms. It stands to reason that there will never be a proposal to encourage sociology as the only factor in guiding development—technology is far too multifaceted. However, given the rapid growth of intelligent technologies and computing in everyday life, there is a pervasive need to think sociologically about the future design, regulation, and use of algorithms. There are already established ethical frameworks that could be utilized and taken as constructively challenged. The utilization of a sociological perspective and the use of sociology's various ways of approaching ethics could foster useful dialogue and inspire original development of technology in previously unforeseen ways (S. Roberts & N. Montoya, 2022).

One clear point is that ethics should be considered from the outset by socially and politically responsible development teams and communities, rather than being delegated to AI technology subsequently. A technology inherently cannot be moral, immoral, good, or bad; but decisions taken in its design and use clearly can be. The first steps towards developing a sociological approach to AI ethics are terrace engaged with the literature, societal challenges raised by the increased deployment of algorithms, and the importance of applying a long-term ethical perspective across all arms of the technology's initial development.

4.1. Utilitarianism and Deontological Ethics in AI

In 1782, Jeremy Bentham, a social reformist, wrote his book “The Principles of Morals and Legislation”, where he laid down the foundation for what he called a “rational” or “scientific” approach to the modern ethical theory of utilitarianism. The theory asserts that the foundations of ethics lie in the consequence of actions, best demonstrated by a willingness to maximize happiness and minimize harm as the key metric for moral action; hence, an action can be considered as good if it brings about the greatest pleasure for the greatest number of people (M. Roff, 2020). Utilitarianism has the potential to offer clarity in the decision-making process because its philosophy provides a way to evaluate AI systems through rankings of outcomes. Because the goal of understanding the moral implications of AI design rests on the effects created by its use, it follows that a large amount of AI systems cannot be judged until they are better understood. This point of skepticism regarding preemptive judgement relates closely to the “black box” problem widely discussed in the ethical AI literature. If the outcomes of an AI system are recognized by an observer after a moral issue has already arisen, would it then be responsible for a system’s designer to have predicted or even prevent the original process, or is it possible for a black box process to achieve moral concerns through an iteration analysis of the system’s design and use?

In contrast, the normative ethical theory of deontological ethics argues that morality is about the actions itself, and both AI developers and users have moral duties and rights unaffected by the consequences of the corresponding actions. In short, one ought to treat others with the moral rights people pretend themselves or anyone else to have; this concept is rooted in the autonomous being of humans as rational agents (S. Roberts & N. Montoya, 2022). As such, machines are not capable of thus making themselves irreplaceable to the notion of rights. On the other hand, technologies are designed to serve human needs or interests and it is often the case that advanced AI systems perform roles that have a fundamental effect on humans. This raises an understanding of universal goodwill or the Golden Rule whereby one would not treat a target in a way one would not ought to wish to be treated in the same situation. The result may encourage AI to adopt an adaptive approach to the moral beliefs of people since moral beliefs can become so diverse, inconsistent, and even highly ambiguous. In any event that this is impossible, AI must take upon the very simple rules and beliefs to ensure the maxims of AI morality.

5. Case Studies: Sociological Analysis of Ethical AI Implementation

When a sociological analysis of the implementation of AI ethics is conducted, the negative impacts of a new technology tend to be the most prominent features to emerge. Although it may be said that most case studies of AI in the field, work, and society take this form, there are a growing number of successful applications.

Five diverse case studies are examined: neutral networks in emergency dispatch algorithms, a predictive policing program, the concept of ‘conservative AI,’ the algorithm design of job search platforms in their employers, and oppositional theorists in their government. The feasibility of implementing ethical AI involves a broad set of considerations concerning individual machines or systems (S. Roberts & N. Montoya, 2022). These include digital, informational, and computational materials; data collection, sampling, and analysis processes; the means for training and utilization, such as reading algorithms, supportive systems, or training employees; and ethics of regulating the use, reporting outcomes, and addressing problems. The three key points for sociological success in considering the implementation of AI ethics: (1) Fastidious attention to the materials and processes of AI systems can reveal how they interpellate data into ethical judgements. (2) Strategies of resistance to AI applications are wide-ranging; this clears the path in preemptive legal strategies among other items. (3) Where practically feasible, ethical constraints on AI systems have the most force when they are concerned with their societal impacts.

A key ethical and political concern with the coming wave of AI technologies is the potential proliferation of unfairness. Popularly and in the field, discussions have tended to center on the issue of AI bias. This problem of bias is often approached in a technical light suggesting it is simply ‘a statistical artifact whose processes can be controlled’ (Zajko, 2020). Thus on a basis of fair treatment one group is considered to be

misclassified or over-privileged. Of key importance, this approach ultimately does not address unfairness or the emergence of inequality that results from these patterns of bias; it instead suggests fairness in AI is a technical ‘fix’ on algorithmic systems.

5.1. Ethical Dilemmas in Autonomous Vehicles

The deployment of artificial intelligence (AI) has already seeped its way into the markets. The most commonly cited example is self-driving or 'autonomous' vehicles. An in-depth understanding is necessary as these AI developed situations pose dilemmas for decision-making (Sui, 2023). This will explore how the intersection of ethics and AI can affect programming decisions in uncertain situations using the specific example of the choices a car would need to make if it had to choose between killing its passengers, a group of pedestrians, or rolling over a group of cyclists. The automotive industry shifts its focus to self-driving cars, the ethical implications programming decisions in varying complex situations become more salient. This will look at the choice between killing passengers or pedestrians, as well as the public’s preferences for a computerized driver decision in such a dilemma. Considering this is an emerging technology, it is not ubiquitous. Additionally, since this is a new technology, preemptive conversation would allow the technology to emerge in a more ethical and accepted manner better (Cunneen et al., 2019). While it appears on the surface that there is the correct answer, in practice there are both international differences and also local differences. For instance, different countries tend to prefer preserving the passengers first, while some of the aforementioned preference countries tend to prefer preserving the pedestrian. This is likely for a variety of cultural and socioeconomic reasons. While public actions could perhaps be more succinctly stated as preserving the pedestrian, the reasons behind these actions are seemingly unclear. Social Contract Theory argues individuals give up some of their natural rights to a governing power, in order to receive protection and stability from their government. Under an implicit “social contract,” individuals expect some level of protection and safety from their government. However, does this contract extend to protection from the government’s own regulations and/or beneficial technologies? With autonomous vehicles, the government is encouraging the use of this technology, generally due to the fact that it makes roads safer. The assumption being made by most of these bureaucratic studies is that the AI vehicle would, under ordinary conditions, get in fewer accidents than human drivers. In using this protection narrative, government officials may be able to justify the decisions made by the AI. This is also a rather intriguing argument to use in many countries, as there is an emphasis placed on the preservation of life in the legislative language. While this argument is certainly bold, it may not be effective in practice.

6. Future Directions in Ethical AI Research

As researchers grapple with the urgent need to address the ethical dimensions of AI research and design, there must continue to be an ongoing synthesis of what research

questions have arisen, what collaborations are occurring to tackle these issues, and how inquiry and action are exponentially growing in many directions (Kusters et al., 2020). In interrogating the social, political, and technical implications of AI, sociologists must stay alert to emerging trends and continue to press for the necessary advances to ensure that primarily economic or power-driven imperatives are ethically compliant. The growth of the nascent academic field dedicated to the study of AI ethics, as well as interdisciplinarity between sociologists, ethicists, policymakers, and technologists, should therefore remain actively encouraged. Sociologists are urged to maintain pressure on how these critical AI agendas get shaped and funding decisions are made, especially as new international hubs emerge to guide discussions on responsible artificial intelligence. Amidst this expansion of AI and society, some emerging and recalcitrant research topics are highlighted in the field of ethical frameworks for AI research, as well as some recommendations to help fuel social enquiry in more sustainable, inclusive, and collaborative ways. With rapid adoption rates, the omnipresence of algorithms, and the rise of unforeseen networked sensors, the technical replication of some of the attributes associated with human moral reasoning has also brought about emergent public concern with the social and ethical implications of AI. Concerns over robotic drone warfare, health data surveillance, or predictive policing have progressively fostered the ethical debate on AI design and deployment. Ethical AI manifests itself in various ways, ranging from questions around accountability, fairness, bias, or the protection of user privacies to the recent launch of ‘Lethal Autonomous Weapons’ (L.A.Ws) or the design of ‘Ethical Machines’, as moral machines equipped with the ability to prevent humanity from suffering.

6.1. Ethical AI Governance and Regulation

This subsection examines the role of governance and regulation in ensuring that AI performs as ethically as possible. It discusses important standards – best practices, principles, frameworks – that are being articulated now, asking by whom, how, and to what ends.

A substantial amount of space is devoted to explaining the wealth of actual and potential risk. To understand how these risks are being articulated, the public is invited to consider how regulators generally act in anticipation of emerging risks. In classic forms of regulation (such as controlling pollution or toxins) lawmakers infer a set of rules based on what could happen. Those rules evolve to keep pace with the flexibility of the regulated industry; producers will always be able to innovate in ways perhaps not originally foreseen. The same is now happening for the nascent industry of AI, but understanding how the participants are framing the thought experiments and research that will lead to regulation is crucial in consequently framing productive suggestions. For example, there is an emerging body of opinion that bureaucratic models may be entirely inappropriate for regulating AI; they may need to be ethical by design rather than audit, focusing tightly

on the form and function of the technology rather than its effect on society. This is not simply urged as a solution, but is presented to aid in understanding how best to approach the largely unexplored terrain of AI regulation (Choung et al., 2023).

References

C. Müller, V. (2020). Ethics of Artificial Intelligence and Robotics.

Choung, H., David, P., & S. Seberger, J. (2023). A multilevel framework for AI governance.

Cunneen, M., Mullins, M., & Murphy, F. (2019). Autonomous vehicles and embedded artificial intelligence: The challenges of framing machine driving decisions.

Ferrer, X., van Nuenen, T., M. Such, J., Coté, M., & Criado, N. (2020). Bias and Discrimination in AI: a cross-disciplinary perspective.

Kusters, R., Misevic, D., Berry, H., Cully, A., Le Cunff, Y., Dandoy, L., Díaz-Rodríguez, N., Ficher, M., Grizou, J., Othmani, A., Palpanas, T., Komorowski, M., Loiseau, P., Moulin Frier, C., Nanini, S., Quercia, D., Sebag, M., Soulié Fogelman, F., Taleb, S., Tupikina, L., Sahu, V., Vie, J. J., & Wehbi, F. (2020). Interdisciplinary Research in Artificial Intelligence: Challenges and Opportunities.

M. Roff, H. (2020). Expected Utilitarianism.

Marwala, T. & Hurwitz, E. (2017). Artificial Intelligence and Economic Theories.

Royer, A. (2020). The Short Anthropological Guide to the Study of Ethical AI.

S. Roberts, J. & N. Montoya, L. (2022). Contextualizing Artificially Intelligent Morality: A Meta-Ethnography of Top-Down, Bottom-Up, and Hybrid Models for Theoretical and Applied Ethics in Artificial Intelligence.

Sui, T. (2023). Exploring moral algorithm preferences in autonomous vehicle dilemmas: an empirical study. ncbi.nlm.nih.gov

Vakkuri, V., Kemell, K. K., & Abrahamsson, P. (2019). AI Ethics in Industry: A Research Framework.

Zajko, M. (2020). Conservative AI and social inequality: Conceptualizing alternatives to bias through social theory.