Either I win or nobody wins: a survey experiment on outcome favourability, participatory budgeting allocation and Artificial Intelligence.

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Abstract

This paper investigates how the use of AI algorithms in political decision-making affects satisfaction with the performance and outcomes of the process. We also analyse if outcome favourability, that according to the literature, is "the strongest determinant of individuals' willingness to accept authoritative decisions" (Essaiasson et al. 2016) mediate this effect. Using data from a July 2023 web survey of 3,000 Spanish respondents aged 18 to 64, we analyse the results of a population-based experiment simulating online Participatory Budgeting (PB). First, participants were randomly assigned to four different scenarios of decision-making: i) direct democracy, ii) argument visualization, iii) transparent AI algorithm and iv) opaque AI algorithm. Second, they chose their preferred policy proposals. They were then presented the process outcomes produced using different decision-making approaches. Half of the participants in each scenario were shown an outcome that coincided with the proposals chosen by them, whereas the other half were shown non-coincident outcomes. Lastly, all participants were asked to assess the process using different measures that capture their level of satisfaction.

Our findings confirm that outcome favourability is the primary driver of satisfaction with the decision-making process, overshadowing procedural effects. Satisfaction is highest when an opaque AI algorithm selects the optimal choice, particularly in cases where outcomes differ from participants' preferences. Conversely, satisfaction decreases in scenarios where participants' votes are considered in selecting the outcomes.

Keywords: Democracy, Governance, Political Participation, Survey Experiments, Policy decision, Outcome favourability, Procedural Fairness, Decision acceptance

INTRODUCTION

Existing literature has explored the relationship between political legitimacy and outcome favourability. Most of these studies have found robust evidence showing that citizens are more likely to accept a decision-making process when its outcomes align with their policy preferences. In other words, citizens support a decision-making process when they perceive that they will benefit from the outcome (Arnesen, 2017; Esaiasson et al 2019; Landwehr & Harms, 2000). However, other studies have found

evidence indicating that certain decision-making procedures generate stronger legitimacy than others (Esaiasson et al 2012) and that citizens might accept to a greater extent a decision if they consider that the process has been fair and democratic enough, even when the policy decision taken has been unfavourable to their preferences (Nakatani, 2023). This paper analyses the effects of outcome favourability and decision-making procedures on process acceptance.

To do this, a survey experiment was carried out in which a Participatory Budgeting Allocation was simulated. Survey participants were distributed considering different decision-making scenarios and different outcome decisions. As a novelty this study includes Artificial Intelligence as a policy-maker and examines its level of acceptability and legitimacy compared to other decision-making models, such as majoritarian vote.

The winner/loser hypothesis posits that the level of support or rejection for a decision-making process hinges on whether the public believes that it maximizes the likelihood of achieving their desired policies or demands. According to this perspective, support for a particular decision process is primarily instrumental. However, if the public perceive the process as fair, democratic and transparent, acceptance and legitimacy of the process tend to increase, particularly among 'losers'. This paper contributes to this literature by examining how satisfaction with the functioning of decision-making processes and with the policy decision are influenced by outcome favourability, comparing different decision-making scenarios that include majoritarian vote and AI and two variations of each one then (majoritarian vote, majoritarian vote with arguments visualization, opaque and transparent AI algorithms).

The experiment is part of the research project "AUTODEMO: The Stealth Side of Participatory Democracy: Process Preferences towards Automated Decision-Making", funded by the Caixa Observatory (ref. SR21-00329). The general objective of the project was to analyse AI within the process preferences equation as a new policy-maker and its degree of acceptability and legitimacy comparing with other decision-making models. To respond to this objective, we conducted a web survey aimed at the Spanish Internet user population between 18 and 64 years of age. The questionnaire, with an average duration of 21 minutes, included a set of questions and indicators related to political attitudes in general, the concept of democracy and attitudes towards AI in general and its application in the field of public management and political decision-making.

The experiment was embedded in a cross-sectional survey conducted between 5th and 28th July 2023. Respondents were randomly selected among the panellists belonging to a probability-based panel of the Spanish population managed and maintained by the opinion research company IMOP. Survey respondents were randomly assigned to four different scenarios of decision-making: i) direct democracy, ii) argument visualization, iii) opaque AI algorithm and iv) transparent AI algorithm. On the first screen they were

presented with the proposal to participate in a participatory budgeting process carried out by the government of their region. Then, they were shown a list of proposals selected in the first phase of the process and asked to select up to 3 preferred proposals without exceeding the allocated budget of 23 million euros. They were then presented the process outcomes produced using different decision-making approaches. Half of the participants in each scenario were shown an outcome that coincided with the proposals chosen by them, whereas the other half were shown non-coincident outcomes. Lastly, all participants were asked to assess the process using different measures that capture their level of satisfaction.

Consistent with prior research, our findings highlight that outcome favourability stands out as the primary driver of satisfaction with the decision-making process, both in terms of its performance and outcomes. Its impact is so robust that it overrides the effects associated with the decision-making procedures. The majority of procedural effects manifest in experimental groups where outcomes deviate from participants' choices. Within these groups, the procedure yielding the highest satisfaction involves the selection of the optimal choice by an opaque AI algorithm. In all alternative scenarios, even when employing the transparent AI algorithm that considers the votes of all participants to select the optimal outcome, satisfaction with both the process's performance and its outcomes decreases significantly.

This paper is organized as follows. In the next section we present an exploratory review of the existing literature related to the topic, highlighting the key findings and the context where our research fits in. Next, we detail our expectations and hypothesis regarding the experimental outcomes. We then describe the methods employed in our research, including data collection techniques and the experimental design. We present the results of our analysis, followed by a discussion in where we interpret the findings in the context of the broader literature and theoretical framework.

REFERENCES

Alon-Barkat, S., & Busuioc, M. (2023). Human–AI interactions in public sector decision making:“automation bias” and “selective adherence” to algorithmic advice. *Journal of Public Administration Research and Theory*, *33*(1), 153-169

Anderson, J., Rainie, L., & Luchsinger, A. (2018). Artificial intelligence and the future of humans. Pew Research Center, 10, 12.

Arnesen, S. (2017). Legitimacy from decision-making influence and outcome favourability: Results from general population survey experiments. *Political Studies*, *65* (1_suppl), 146-161.

Anelli, M., Colantone, I., & Stanig, P. (2019). We were the robots: Automation and voting behavior in western europe. *BAFFI CAREFIN Centre Research Paper*, (2019-115).

Barth, T. J., & Arnold, E. (1999). Artificial intelligence and administrative discretion: Implications for public administration. *The American Review of Public Administration*, *29*(4), 332-351.

Benade, G., Itzhak, N., Shah, N., Procaccia, A. D., & Gal, Y. (2018). Efficiency and usability of participatory budgeting methods. *Unpublished manuscript*.

Buhmann, A., & Fieseler, C. (2023). Deep learning meets deep democracy: Deliberative governance and responsible innovation in artificial intelligence. *Business Ethics Quarterly*, *33*(1), 146-179.

Castellanos Claramunt, Jorge. (2019). La democracia algorítmica: inteligencia artificial, democracia y participación política. En: Andrés Boix Palop y Lorenzo Cotino Hueso (coords.), Monográfico Derecho público, derechos y transparencia ante el uso de algoritmos, inteligencia artificial y big data. *Revista General de Derecho Administrativo*, (50).

Coeckelbergh, M., & Sætra, H. S. (2023). Climate change and the political pathways of AI: The technocracy-democracy dilemma in light of artificial intelligence and human agency. *Technology in Society*, *75*, 102406.

Criado, J. I., & de Zarate-Alcarazo, L. O. (2022). Technological frames, CIOs, and Artificial Intelligence in public administration: A socio-cognitive exploratory study in Spanish local governments. *Government Information Quarterly*, *39*(3), 101688.

De Araújo, V., Almeida Zullo, B., & Torres, M. (2020). Big Data, algoritmos e inteligência artificial na Administração Pública: reflexões para a sua utilização em um ambiente democrático. *A&C-Administrative & Constitutional Law Review-Revista de Direito Administrativo e Constitucional*, *20*(80)

Esaiasson, P., Gilljam, M., & Persson, M. (2012). Which decision-making arrangements generate the strongest legitimacy beliefs? Evidence from a randomised field experiment. *European Journal of Political Research*, *51*(6), 785-808.2.

Esaiasson, P., & Öhberg, P. (2020). The moment you decide, you divide: How politicians assess procedural fairness. *European Journal of Political Research*, *59*(3), 714-730.

Esaiasson, P., Persson, M., Gilljam, M., & Lindholm, T. (2019). Reconsidering the role of procedures for decision acceptance. *British Journal of Political Science*, *49*(1), 291-314.

Duberry, J. (2022). *Artificial intelligence and democracy: risks and promises of AI-mediated citizen–government relations*. Edward Elgar Publishing.

Fabrika, A., Kostyshyna, T., Kliuienko, E., Mats , T., & Kharchenko, L. (2024). Democracia digital y gobierno de la inteligencia artificial: Problemáticas sociales. *Interacción Y Perspectiva*, *14*(2), 228-340. https://doi.org/10.5281/zenodo.10909505

Ferrín, M., & Kriesi, H. (Eds.). (2016). *How Europeans view and evaluate democracy*. Oxford University Press.

Fejes, E., & Futó, I. (2021). Artificial intelligence in public administration–supporting administrative decisions. *Public Finance Quarterly= Pénzügyi Szemle*, *66*(S1), 23-51

Gallego, A., Kurer, T., & Schöll, N. (2022). Neither left behind nor superstar: ordinary winners of digitalization at the ballot box. *The Journal of Politics*, *84*(1), 418-436.

Guerrero, J. M. (2020). Mind mapping in artificial intelligence for data democracy. In *Data Democracy* (pp. 45-82). Academic Press.

Hansen, F. G. (2023). Can warm behavior mitigate the negative effect of unfavorable governmental decisions on citizens' trust?. *Journal of Experimental Political Science*, *10*(1), 62-75.

Hibbing, J. R., & Theiss-Morse, E. (2002). *Stealth democracy: Americans' beliefs about how government should work*. Cambridge University Press.

Im, Z. J., Mayer, N., Palier, B., & Rovny, J. (2019). The "losers of automation": A reservoir of votes for the radical right?. *Research & Politics*, *6*(1), 2053168018822395.

Innerarity, D. (2023). The epistemic impossibility of an artificial intelligence take-over of democracy. *AI & SOCIETY*, 1-5

Jungherr, A. (2023). Artificial intelligence and democracy: A conceptual framework. *Social media+ society*, *9*(3), 20563051231186353.

König, P. D. (2023). Citizen conceptions of democracy and support for artificial intelligence in government and politics. *European Journal of Political Research*, *62*(4), 1280-1300.

Landwehr, C., & Harms, P. (2020). Preferences for referenda: Intrinsic or instrumental? Evidence from a survey experiment. *Political Studies*, *68*(4), 875-894

Laruelle, A. (2021). Voting to select projects in participatory budgeting. *European Journal of Operational Research*, *288*(2), 598-604.

Magalhães, P. C. (2016). Economic evaluations, procedural fairness, and satisfaction with democracy. *Political Research Quarterly*, *69*(3), 522-534.

Nakatani, M. (2023). How do political decision-making processes affect the acceptability of decisions? Results from a survey experiment. *International Political Science Review*, *44*(2), 244-261.

Persson, M., Esaiasson, P., & Gilljam, M. (2013). The effects of direct voting and deliberation on legitimacy beliefs: An experimental study of small group decision-making. *European Political Science Review*, *5*(3), 381-399.

Ramiò, C. (2018). Artificial intelligence, robotics and public administration models. *Revista del CLAD Reforma y Democracia*, (72), 7-44.

Sharan, N. N., & Romano, D. M. (2020). The effects of personality and locus of control on trust in humans versus artificial intelligence. *Heliyon*, *6*(8

Serramia, M., Lopez-Sanchez, M., Rodríguez-Aguilar, J. A., & Escobar, P. (2019). Optimising Participatory Budget Allocation: The Decidim Use Case 1. In *Artificial Intelligence Research and Development* (pp. 193-202). IOS Press.

Son, H. (2019). Artificial Intelligence Governance and the Future of Democracy. *Journal of Social Thoughts and Culture*, *2*, 305-349.

Starke, C., & Lünich, M. (2020). Artificial intelligence for political decision-making in the European Union: Effects on citizens' perceptions of input, throughput, and output legitimacy. *Data & Policy*, *2*, e16.

Valles, L (2019). Aplicación de inteligencia artificial y big data en el control de la Administración Pública y en el combate a la corrupción: la experiencia del gobierno brasileño. *Revista General de Derecho Administrativo*, (50), 35

Värttö, M. (2021). The Value of Public Engagement: Do Citizens' Preferences Really Matter?. Scandinavian Journal of Public Administration, 25(2), 23-41

Verhulst, S. G. (2018). Where and when AI and CI meet: exploring the intersection of artificial and collective intelligence towards the goal of innovating how we govern. AI & society, 33(2), 293- 297

Wirtz, B. W., Weyerer, J. C., & Sturm, B. J. (2020). The dark sides of artificial intelligence: An integrated AI governance framework for public administration. *International Journal of Public Administration*, *43*(9), 818-829.

Young, M. M., Bullock, J. B., & Lecy, J. D. (2019). Artificial discretion as a tool of governance: a framework for understanding the impact of artificial intelligence on public administration. *Perspectives on Public Management and Governance*, *2*(4), 301-313.