RESEARCH STATEMENT

This is a brief description of the main topics of my research and ongoing projects.

My research focuses on strategic communication and social networks, particularly in models of opinion formation and persuasion, and in models of linkage decisions that give rise to networks. A recurring theme is to propose models that can be useful in applications such as political behavior, marketing choices, or news media strategies. While my research is theory-based, I seek to capture aspects of communication and networks that can be empirically tested.

Social networks influence opinion formation, persuasion efforts, bargaining, and political choices. Current technology dramatically facilitates how some actors can communicate with increasingly large numbers of information-based decision-making listeners. A first strand on my research takes networks as given and then investigates strategic behavior, and outcomes, when agents interact with their neighbors. Using a setting where people can talk with others using both their direct and indirect connections in a social network, Jimenez-Martinez (2015) analyzes belief formation and correct learning. Compared to previous work, the setting avoids "rules of thump" learning—as explored, e.g., by DeMarzo et al. (2003) and Golub and Jackson (2012)—and considers instead Bayesian learning processes restricted to each path in the network. An entropy-based measure is then considered to describe the quality of connections in terms of information. While entropy-based measures have been more abstractly proposed to model gains of information (in terms of reduced uncertainty) in a number of settings (Gentzkow and Kamenica, 2014; Ely et al., 2015; Frankel and Kamenica, 2019), they have seldom been applied to study evolution of beliefs in networks. The particular measure proposed in Jimenez-Martinez (2015) naturally captures the decay phenomenon in the transmission of information through networks. Also, from a more IO perspective, Jimenez-Martinez (2019) investigates a model of versioning in social networks. A monopolist offers a two-version of a network-based service. One version is free but comes with advertising (about a different product). The other version is costly (premium), drops advertising, and enhances the network externalities of the service. For this increasingly common practice in platform business, the paper relates key properties of the social network to the optimal second-order discrimination policy and its welfare implications. On other work on strategic interactions in networks, Dam and Jimenez-Martinez (2012) study the impact of key network structures and distributions of bargaining power on the outcome of bargaining in networks.

A second theme of my research deals with endogenous formation of friendship networks.

Jimenez-Martinez and Melguizo-Lopez (2022) explores topics that are commonly investigated by economists, social psychologists, and social anthropologists. Unlike previous work, it provides a rationale for two well-documented characteristics: (i) asymmetrical efforts in friendships relations (Antonucci et al., 1990) and (ii) good-quality heterophilic relations within predominantly homophilic societies (Hallinan and Williams, 1989; Muttarak, 2014). Such empirically documented findings contrast sharply previous results within the theoretical literature on social networks (Galeotti et al., 2006; Currarini et al., 2009; Boucher, 2015; De Marti and Zenou, 2017). Furthermore, the article gives sufficient conditions for efficiency of the investigated patterns of friendship relationships. Since the previous theoretical literature failed to provide the above-mentioned documented features, the efficiency analysis could be useful to suggest novel policy implications.

A third agenda studies strategic communication, information acquisition, and persuasion in two-agent environments. Jimenez-Martinez (2006) studies bilateral cheap-talk about complementary pieces of information in the presence of monetary transfers associated to lying. Jimenez-Martinez (2014) investigates strategic information acquisition from external sources by agents who subsequently engage in competition, either with complement or substitutive actions. The analysis shows that strategic motivations in the information acquisition stage do not necessarily replicate those of the action stage, as postulated by Hellwig and Veldkamp (2009) for the case of a continuum of agents. Jimenez-Martinez (2020) investigates a setting with multi-dimensional uncertainty in which a Sender combines committed constrained experimentation with uncommitted communication to influence an audience.

Motivated by the current revolution in the outreach of communication, and by its political and societal effects, my ongoing work considers three agendas. In the first project, my coauthor Isabel Melguizo-Lopez (from CIDE) and I build upon theoretical work on evidence disclosure under partial provability (Dye, 1985; Jung and Kwon, 1988; Che and Kartik, 2009; Kartik et al., 2017; Shishkin, 2022) to investigate how leaders acquire costly evidence and then conceal part of it to a group of voters. Furthermore, we consider a diverse worldviews environment in this project. This (in part, political science-motivated) project is in progress and has already delivered two working papers, which complement each other on this research question. We would like to generalize the models proposed in our two drafts and obtain a broader set of results that could be empirically tested. Understanding how leaders follow "cherry-picking" strategies to acquire and conceal evidence, and how such strategies are affected by voting rules, is central to understand leaders' narratives

based on evidence provision. The project aims also at assessing the welfare effects of such communication strategies. Certainly, a number of works have already dealt with strategic communication in voting environments. For instance, Schnakenberg (2015) use cheap-talk communication, Alonso and Camara (2016), Chan et al. (2019), and Titova (2021) use ex ante commitment or Bayesian persuasion, and Bandyopadhyay et al. (2020) use costly signaling. However, to the best of our knowledge, evidence disclosure with partial provability is a novel approach in voting environments. Interestingly, this framework seems particularly suitable to capture the types of "cherry-picking" evidence disclosure strategies which are commonplace in real-world voting environments. Our diverse worldviews framework separate also the model, and its plausible implications, from other models with voting under partial provability disclosure, e.g., Jackson and Tan (2012).

In the second project, my coauthor Mauricio Fernandez-Duque (from CIDE) and I are developing a model that help us understand narratives that strategically "retell," or narrate, historical events with the goal of influencing a certain audience. This seems to be a practice that communicators (Senders) increasingly use in political environments. This project is now in a nascent stage. Using the machineries of Bayesian persuasion (Kamenica and Gentzkow, 2011) and of cheap-talk communication (Crawford and Sobel, 1982), we have already proposed and investigated a simple model. In the model, a Sender who has private access to committed and verifiable studies about historical studies/experiments chooses how to narrate the findings of such studies. The model allows for interesting equilibria of the underlying game which are novel in the related literature. In a future stage of the project, we wish to include competing Senders who narrate strategically about findings on a common historical event to a certain audience. In the sort of environments described, whether or not competition bolsters truthful communication is still an open question. Since the narratives of the Senders are based on verifiable information, a plausible interesting equilibrium would be one in which even opposed Senders imitate each other in their uninformative narratives. In that case, the model would provide a rationale for the accumulation of uninformative narratives about historical events even when Senders compete to influence an audience. We would like this project to combine a simple theoretical model with a thorough empirical analysis. In fact, an essential part of this project consists of testing empirically the predictions of the model. In particular, we would like to explore both micro-econometric estimation methods and lab experiments. As to the lab experiment, we would like to follow an approach similar to the one undertaken by Frechette et al. (2019) to test the predictions of verifiable disclosure or communication games.

In the third project, I am following up on the analysis of Jimenez-Martinez (2020) in order to investigate how a persuader can sequentially combine committed communication (such as the one that stems from experiments or independent investigation) over one dimension of uncertainty with uncommitted communication (such as pure cheap-talk) over another dimension. Persuader and listener disagree on the most suitable course of action in a situation of uncertainty. Then, to bring the listener's beliefs closer to her own ones, the persuader designs an experiment over one dimension and "ties her hands up" about the result of such an experiment. After the experiment releases its findings, the persuader simply talks about the other dimension (that is, conditional on the outcome of the experiment). With the motivation that uncertainty relevant for decision-making has several dimensions in practice, this project aims at providing a rationale for how persuaders use cheap-talk narratives on some aspect, anticipating the results of experiments that they design over another aspect. To the best of my knowledge, the only work that has followed this approach is Jain (2018). This paper, though, is very restrictive in the class of situations it analyzes. My goal is generalize the analysis in Jimenez-Martinez (2020) and Jain (2018) in order to obtain results of broad applicability.

Bibliography

ALONSO, R. AND O. CAMARA (2016): "Persuading Voters," *American Economic Review*, 106, 3590–3605.

ANTONUCCI, T. C., R. FUHRER, AND J. S. JACKSON (1990): "Social Support and Reciprocity: A Cross-Ethnic and Cross-National Perspective," *Journal of Social and Personal Relationships*, 7, 519–530.

BANDYOPADHYAY, S., K. CHATTERJEE, AND J. ROY (2020): "Extremist Platforms: Political Consequences of Profit-Seeking Media," *International Economic Review*, 61, 1173–1193.

BOUCHER, V. (2015): "Structural Homophily," *International Economic Review*, 56, 235–264.

CHAN, J., S. GUPTA, F. LI, AND Y. WANG (2019): "Pivotal persuasion," *Journal of Economic theory*, 180, 178–202.

CHE, Y.-K. AND N. KARTIK (2009): "Opinions as Incentives," *Journal of Political Economy*, 117, 815–860.

CRAWFORD, V. P. AND J. SOBEL (1982): "Strategic Information Transmission," *Econometrica*, 5, 1431–1451.

CURRARINI, S., M. O. JACKSON, AND P. PIN (2009): "An Economic Model of Friendship: Homophily, Minorities, and Segregation," *Econometrica*, 77, 1003–1045.

DAM, K. AND A. JIMENEZ-MARTINEZ (2012): "A Note on Bargaining over Complementary Pieces of Information in Networks," *Economics Bulletin*, 32, 1–13.

DE MARTI, J. AND Y. ZENOU (2017): "Segregation in friendship networks," *The Scandinavian Journal of Economics*, 119, 656–708.

DEMARZO, P. M., D. VAYANOS, AND J. ZWIEBEL (2003): "Persuasion Bias, Social Influence, and Unidimensional Opinions," *The Quarterly Journal of Economics*, 118, 909–968.

DYE, R. A. (1985): "Disclosure of Nonproprietary Information," *Journal of Accounting Research*, 23, 124–145.

ELY, J. C., A. FRANKEL, AND E. KAMENICA (2015): "Suspense and Surprise," *Journal of Political Economy*, 123, 215–260.

FRANKEL, A. AND E. KAMENICA (2019): "Quantifying Information and Uncertainty," *American Economic Review*, 109, 3650–3680.

FRECHETTE, G. R., A. LIZZERI, AND J. PEREGO (2019): "Rules and Commitment in Communication: An Experimental Analysis," Tech. rep., New York University.

GALEOTTI, A., S. GOYAL, AND J. KAMPHORST (2006): "Network formation with heterogeneous players," *Games and Economic Behavior*, 54, 353–372.

GENTZKOW, M. AND E. KAMENICA (2014): "Theory of Persuasion: Costly Persuasion," *American Economic Review: AEA Papers and Proceedings*, 104, 457–462.

GOLUB, B. AND M. O. JACKSON (2012): "How Homophily Affects the Speed of Learning and Best-Response Dynamics," *The Quarterly Journal of Economics*, 127, 1287–1338.

HALLINAN, M. T. AND R. A. WILLIAMS (1989): "Interracial Friendship Choices in Secondary Schools," *American Sociological Review*, 54, 67–78.

HELLWIG, C. AND L. VELDKAMP (2009): "Knowing What Others Know: Coordination Motives in Information Acquisition," *Review of Economic Studies*, 76, 223–251.

JACKSON, M. O. AND X. TAN (2012): "Deliberation, Disclosure of Information, and Voting," *Journal of Economic Theory*, 148, 2–30.

JAIN, V. (2018): "Bayesian Persuasion with Cheap Talk," *Economics Letters*, 91–95.

JIMENEZ-MARTINEZ, A. (2006): "A Model of Interim Information Sharing under Incomplete Information," *International Journal of Game Theory*, 34, 425–442.

——— (2014): "Information Acquisition Interactions in Two-Player Quadratic Games," *International Journal of Game Theory*, 43, 455–485.

——— (2015): "A Model of Belief Influence in Large Social Networks," *Economic Theory*, 59, 21–59.

——— (2019): "Discrimination through Versioning with Advertising in Social Networks," *Economic Theory*, 67, 525–564.

——— (2020): "Persuasion under "Aspect-Restricted" Experimentation," Tech. rep., CIDE.

JIMENEZ-MARTINEZ, A. AND I. MELGUIZO-LOPEZ (2022): "Making Friends: The Role of Assortative Interests and Capacity Constraints," *Journal of Economic Behavior and Organization*, 203, 431–465.

JUNG, W.-O. AND Y. K. KWON (1988): "Disclosure when the Market if Unsure of Information Endowment of Managers," *Journal of Accounting Research*, 26, 146–153.

KAMENICA, E. AND M. GENTZKOW (2011): "Bayesian Persuasion," *American Economic Review*, 101, 2590–2615.

KARTIK, N., F. X. LEE, AND W. SUEN (2017): "Investment in Concealable Information by Biased Experts," *RAND Journal of Economics*, 48, 24–43.

MUTTARAK, R. (2014): "Generation, Ethnic and Religious Diversity in Friendship Choice: Exploring Interethnic Close Ties in Britain," *Ethinc and Racial Studies*, 37, 1–28.

SCHNAKENBERG, K. E. (2015): "Expert Advice to a Voting Body," *Journal of Economic Theory*, 160.

SHISHKIN, D. (2022): "Evidence Acquisition and Voluntary Disclosure," Tech. rep., UC San Diego.

TITOVA, M. (2021): "Persuasion with Verifiable Information," Tech. rep., UC San Diego.