

Dror, David Mark

Preprint

A Mathematical Framework for Trust Dynamics in Small-Scale Risk-Sharing Communities

Suggested Citation: Dror, David Mark (2025) : A Mathematical Framework for Trust Dynamics in Small-Scale Risk-Sharing Communities, ZBW - Leibniz Information Centre for Economics, Kiel, Hamburg

This Version is available at:

<https://hdl.handle.net/10419/316140>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

References

- [1] Arrow, K. J. (1963). Uncertainty and the welfare economics of medical care. *The American Economic Review*, 53(5), 941-973.
- [2] Akerlof, G. A. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *The Quarterly Journal of Economics*, 84(3), 488-500.
- [3] Ambrus, A., Mobius, M., & Szeidl, A. (2014). Consumption risk-sharing in social networks. *American Economic Review*, 104(1), 149-182.
- [4] Barabási, A. L., & Albert, R. (1999). Emergence of scaling in random networks. *Science*, 286(5439), 509-512.
- [5] Barr, A., & Genicot, G. (2008). Risk sharing, commitment, and information: An experimental analysis. *Journal of the European Economic Association*, 6(6), 1151-1185.
- [6] Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, reciprocity, and social history. *Games and Economic Behavior*, 10(1), 122-142.
- [7] Boissay, F., & Collard, F. (2016). Macroeconomics of bank capital and liquidity regulations. *BIS Working Papers*, No 596.
- [8] Butler, J. V., Giuliano, P., & Guiso, L. (2016). Trust and cheating. *The Economic Journal*, 126(595), 1703-1738.
- [9] Centola, D., & Macy, M. (2007). Complex contagions and the weakness of long ties. *American Journal of Sociology*, 113(3), 702-734.
- [10] Cherubini, U., Luciano, E., & Vecchiato, W. (2004). *Copula methods in finance*. John Wiley & Sons.
- [11] Cole, S., Giné, X., Tobacman, J., Topalova, P., Townsend, R., & Vickery, J. (2013). Barriers to household risk management: Evidence from India. *American Economic Journal: Applied Economics*, 5(1), 104-135.
- [12] Cont, R., & Bouchaud, J. P. (2000). Herd behavior and aggregate fluctuations in financial markets. *Macroeconomic Dynamics*, 4(2), 170-196.
- [13] Demange, G. (2017). Contagion in financial networks: A threat index. *Management Science*, 64(2), 955-970.
- [14] Dessein, W., & Santos, T. (2006). Adaptive organizations. *Journal of Political Economy*, 114(5), 956-995.
- [15] Easley, D., & Kleinberg, J. (2010). *Networks, crowds, and markets: Reasoning about a highly connected world*. Cambridge University Press.

- [16] Einav, L., Finkelstein, A., & Cullen, M. R. (2010). Estimating welfare in insurance markets using variation in prices. *The Quarterly Journal of Economics*, 125(3), 877-921.
- [17] Fafchamps, M., & Lund, S. (2003). Risk-sharing networks in rural Philippines. *Journal of Development Economics*, 71(2), 261-287.
- [18] Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*. Free Press.
- [19] Gai, P., & Kapadia, S. (2010). Contagion in financial networks. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 466(2120), 2401-2423.
- [20] Gambetta, D. (1988). *Trust: Making and breaking cooperative relations*. Blackwell.
- [21] Glaeser, E. L., Laibson, D. I., Scheinkman, J. A., & Soutter, C. L. (2000). Measuring trust. *The Quarterly Journal of Economics*, 115(3), 811-846.
- [22] Guiso, L., Sapienza, P., & Zingales, L. (2008). Trusting the stock market. *The Journal of Finance*, 63(6), 2557-2600.
- [23] International Labour Organization. (2018). *Women and men in the informal economy: A statistical picture*. International Labour Office.
- [24] Jackson, M. O. (2008). *Social and economic networks*. Princeton University Press.
- [25] Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263-291.
- [26] Karlan, D., Mobius, M., Rosenblat, T., & Szeidl, A. (2009). Trust and social collateral. *The Quarterly Journal of Economics*, 124(3), 1307-1361.
- [27] Kermack, W. O., & McKendrick, A. G. (1927). A contribution to the mathematical theory of epidemics. *Proceedings of the Royal Society A*, 115(772), 700-721.
- [28] La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Trust in large organizations. *The American Economic Review*, 87(2), 333-338.
- [29] Leippold, M., & Vanini, P. (2005). The quantification of operational risk. *Journal of Risk*, 8(1), 59-85.
- [30] Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709-734.
- [31] McNeil, A. J., Frey, R., & Embrechts, P. (2015). *Quantitative risk management: Concepts, techniques and tools*. Princeton University Press.
- [32] Newman, M. E. (2003). The structure and function of complex networks. *SIAM Review*, 45(2), 167-256.

- [33] Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.
- [34] Pastor-Satorras, R., & Vespignani, A. (2001). Epidemic spreading in scale-free networks. *Physical Review Letters*, 86(14), 3200-3203.
- [35] Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon & Schuster.
- [36] Rothschild, M., & Stiglitz, J. (1976). Equilibrium in competitive insurance markets: An essay on the economics of imperfect information. *The Quarterly Journal of Economics*, 90(4), 629-649.
- [37] Schweizer, B., & Sklar, A. (2011). *Probabilistic metric spaces*. Dover Publications.
- [38] Sklar, A. (1959). Fonctions de répartition à n dimensions et leurs marges. *Publications de l'Institut de Statistique de l'Université de Paris*, 8, 229-231.
- [39] Stiglitz, J. E. (1990). Peer monitoring and credit markets. *The World Bank Economic Review*, 4(3), 351-366.
- [40] Townsend, R. M. (1994). Risk and insurance in village India. *Econometrica*, 62(3), 539-591.
- [41] Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, 106(4), 1039-1061.
- [42] Uzzi, B. (1996). The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review*, 61(4), 674-698.
- [43] Watts, D. J. (2002). A simple model of global cascades on random networks. *Proceedings of the National Academy of Sciences*, 99(9), 5766-5771.
- [44] Watts, D. J., & Strogatz, S. H. (1998). Collective dynamics of 'small-world' networks. *Nature*, 393(6684), 440-442.
- [45] Yaari, M. E. (1987). The dual theory of choice under risk. *Econometrica*, 55(1), 95-115.
- [46] Zak, P. J., & Knack, S. (2001). Trust and growth. *The Economic Journal*, 111(470), 295-321.
- [47] Cole, H. L., Krueger, D., Mailath, G. J., & Park, Y. (2024). Trust in risk sharing: A double-edged sword. *Review of Economic Studies*, 91(3), 1448-1497.
- [48] Zhu, Q., & Basar, T. (2015). Game-theoretic methods for robustness, security, and resilience of cyberphysical control systems: Games-in-games principle for optimal cross-layer resilient control systems. *IEEE Control Systems*, 35(1), 46-65.

