

Viktor Stojkoski, PhD

Curriculum Vitae

PERSONAL DETAILS

Birth date December 8, 1992
Address Rajko Zinzifov 50/1-20, Skopje, North Macedonia
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Mail viksabot@gmail.com
Website <https://sites.google.com/view/viktorstojkoski>
Google Scholar Link to Google Scholar

EDUCATION

PhD in Economics

2020-2023

Faculty of Economics,

University Ss. Cyril and Methodius in Skopje

Thesis: "The role of ergodicity in income inequality and mobility"

Defended on: 22 September 2023

PhD in Computer Science

2017-2020

Faculty of Computer Science and Engineering,

University Ss. Cyril and Methodius in Skopje

Thesis: "Cooperation dynamics of generalized reciprocity on complex networks"

Defended on 13 October 2020

MSc in Statistics

2015-2016

Faculty of Economics,

University Ss. Cyril and Methodius in Skopje

Thesis: "The relationship between growth and economic complexity:

Evidence from Southeastern and Central Europe"

BSc in Finance

2011-2015

Faculty of Economics,

University Ss. Cyril and Methodius in Skopje

Thesis: "Time-series models for electricity pricing"

EXPERIENCE

Assistant Professor

2025-Present

Faculty of Economics, University Ss. Cyril and Methodius in Skopje

Conduction of the educational process in the Department of Mathematics and Statistics, and participation in independent research.

Undergraduate courses taught:

- Statistics for Economics

Visiting Research Fellow

2023-present

Center for Collective Learning

Research in economic complexity and economic geography.	
Postdoctoral Researcher	2022-2023
<i>Center for Collective Learning, University of Toulouse</i>	
Research in economic complexity and economic geography.	
Researcher & Chairman of the executive board	2015-present
<i>The Association for Research and Analysis</i>	
Participation in the realization of statistical and econometric research that serves for informing public policies.	
Associate Researcher	2015-2020
<i>Macedonian Academy of Sciences and Arts</i>	
Participation in the realization of scientific and research projects that are conducted by the Center for Computer Science and Information Technologies.	

SKILLS

<i>Languages</i>	Macedonian (mother tongue) English (fluent) German (fluent)
<i>Software</i>	MATLAB, L ^A T _E X, STATA, R, PYTHON

PUBLICATIONS AND WORKING PAPERS

2026 –

- Stojkoski, V., & Hidalgo, C. A. (2026). Optimizing economic complexity. *Research Policy*, 55(4), 105454.
- Hidalgo, C. A., & Stojkoski, V. (2026). Capability Accumulation and Conditional Convergence: Towards a Dynamic Theory of Economic Complexity. arXiv preprint arXiv:2512.10672.

2025 –

- Stojkoski, V., Lopez-Calva, L.F., Bolch, K.B. & Fernandez, A., (2025). “Development acupuncture:” mapping the network structure of multidimensional poverty. *Journal of Economic Policy Reform*, 1–20.
- Hidalgo, C. A., & Stojkoski, V. (2025). The Theory of Economic Complexity. arXiv preprint arXiv:2506.18829.
- Kitanovski, D., Mishkovski, I., Stojkoski, V., & Mirchev, M. (2025). Network-based diversification of stock and cryptocurrency portfolios. *Applied Network Science*, 10(1), 20.
- Jolakoski, P., Trajanovski, P., Pal, A., Stojkoski, V., Kocarev, L., & Sandev, T. (2025). Impact of stochastic resetting on resource allocation: The case of reallocating geometric Brownian motion. *Physical Review E*, 111(3), 034129.

2024 –

- Koch, P., Stojkoski V., & Hidalgo, C. A. (2024). Augmenting the availability of historical GDP per capita estimates through machine learning. To appear in the *Proceedings of the National Academy of Sciences and Arts*.

- Stojkoski, V., Lopez-Calva, L.F., Bolch, K.B. & Fernandez, A., 2025. “Development acupuncture:” mapping the network structure of multidimensional poverty. *Journal of Economic Policy Reform*, 1–20.
- Stojkoski, V., Koch, P., Coll, E., & Hidalgo, C. A. (2024). Estimating digital product trade through corporate revenue data. *Nature Communications*, 15(1), 5262.
- Stojkoski, V. (2024). Measures of physical mixing evaluate the economic mobility of the typical individual. *Chaos, Solitons & Fractals*, 180, 114567.

2023 –

- Koch, P., Stojkoski, V., & Hidalgo, C. A. (2023). The role of immigrants, emigrants and locals in the historical formation of European knowledge agglomerations. *Regional Studies*, 1-15.
- Stojkoski, V., Mitikj, S., Trpkova-Nestorovska, M., & Tevdovski, D. (2023). Research in progress to appear at the 4th International Scientific Conference on “Economic and Business Trends Shaping the Future.”
- Navarrete, C., Macedo, M., Stojkoski, V., & Parada, M. (2023). Election Polarization: Mapping citizen divisions through elections. *arXiv preprint arXiv:2308.10862*.
- Jolakoski, P., Pal, A., Sandev, T., Kocarev, L., Metzler, R., & Stojkoski, V. (2022). A first passage under resetting approach to income dynamics. *Chaos, Solitons & Fractals*, 175, 113921.
- Stojkoski, V., Koch, P., & Hidalgo, C. A. (2023). Multidimensional economic complexity and inclusive green growth. *Communications Earth & Environment*, 4(1), 130.
- Disoska, E. M., Toshevska-Trpchevska, K., Tevdovski, D., Jolakoski, P., & Stojkoski, V. (2023). A Pooled Overview of the European National Innovation Systems Through the Lenses of the Community Innovation Survey. *Journal of the Knowledge Economy*, 1-25.
- Stojkoski, V., Toshevska-Trpchevska, K., Disoska, E. M., & Tevdovski, D. (2023). Differences in the Impact of Innovation Relationships on Firms’ Productivity: Evidence from CIS 2014. *Eastern European Economics*, 1-25.

2022 –

- Tevdovski, D., Madjoska, J., Jolakoski, P., Jovanovic, B., & Stojkoski, V. (2022). Firm profits and government activity: An empirical investigation. *Croatian Economic Survey*, 24(1), 43-82.
- Stojkoski, V., Utkovski, Z., Jolakoski, P., Tevdovski, D., & Kocarev, L. (2022). Correlates of the country differences in the infection and mortality rates during the first wave of the COVID-19 pandemic: evidence from Bayesian model averaging. *Scientific reports*, 12(1), 1-11.
- Stojkoski, V., Jolakoski, P., Pal, A., Sandev, T., Kocarev, L., & Metzler, R. (2022). Income inequality and mobility in geometric Brownian motion with stochastic resetting: theoretical results and empirical evidence of non-ergodicity. To appear in *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*.
- Tevdovski, D., Jolakoski, P., & Stojkoski, V. (2022). Determinants of budget deficits: Focus on the effects from the COVID-19 crisis. To appear in *Economic Annals*.

- Stojkoski, V., & Karbevski, M. (2022). Ergodicity breaking in wealth dynamics: The case of reallocating geometric Brownian motion. *Physical Review E*, 105(2), 024107.
- Tevdovski, D., Jolakoski, P., & Stojkoski, V. (2021). The impact of state capacity on the cross-country variations in COVID-19 vaccination rates. *International Journal of Health Economics and Management*.
- Stojkoski, V., Sandev, T., Kocarev, L., & Pal, A. (2022). Autocorrelation functions and ergodicity in diffusion with stochastic resetting. *Journal of Physics A: Mathematical and Theoretical*.

2021 –

- Stojkoski, V., Sandev, T., Kocarev, L., & Pal, A. (2021). Geometric Brownian Motion under Stochastic Resetting: A Stationary yet Non-ergodic Process. *Physical Review E* 104(1), 014121.
- Stojkoski, V., Karbevski, M., Utkovski, Z., Basnarkov, L., & Kocarev, L. (2021). Evolution of cooperation in networked heterogeneous fluctuating environments. *Physica A: Statistical Mechanics and its Applications*, 572, 125904.
- Tevdovski, D., & Stojkoski, V. (2021). What is behind extreme negative returns co-movement in the South Eastern European stock markets?. *Scientific Annals of Economics and Business* 68 (1), 1-19

2020 –

- Stojkoski, V., Sandev, T., Basnarkov, L., Kocarev, L., & Metzler, R. (2020). Generalised geometric Brownian motion: Theory and applications to option pricing. *Entropy*, 22(12), 1432.
- Kostoska, O., Stojkoski, V., & Kocarev, L. (2020). On the structure of the world economy: An absorbing Markov chain approach. *Entropy*, 22(4), 482.
- Basnarkov, L., Stojkoski, V., Utkovski, Z., & Kocarev, L. (2020). Lead-lag relationships in foreign exchange markets. *Physica A: Statistical Mechanics and its Applications*, 539, 122986.

2019 –

- Basnarkov, L., Stojkoski, V., Utkovski, Z., & Kocarev, L. (2019). Option Pricing with Heavy-Tailed Distributions of Logarithmic Returns. *International Journal of Theoretical and Applied Finance*, 22(7), 1950041.
- Stojkoski, V., & Tevdovski, D. (2019). The Ergodic Hypothesis in South-east Europe. In the 5th Conference of the London School of Economics Research Network South East Europe in collaboration with EBRD.
- Stojkoski, V., Sandev, T., Basnarkov, L., & Kocarev, L. (2019). Option pricing under the generalized geometric Brownian motion. In *Proceedings of the 32nd Marian Smoluchowski Symposium on Statistical Physics*.
- Stojkoski, V., Utkovski, Z., Basnarkov, L., & Kocarev, L. (2019). Cooperation dynamics in networked geometric Brownian motion. *Physical Review E*, 99(6), 062312.
- Toshevska-Trpchevska, K., Disoska, E. M., Tevdovski, D., & Stojkoski, V. (2019). The Impact of a Crisis on the Innovation Systems in Europe: Evidence from the CIS10 Innovation Survey. *European Review*, 1-20.

- Stojkoski, V., Utkovski, Z., Andre, E., & Kocarev, L. (2019). The role of multiplex network structure in cooperation through generalized reciprocity. *Physica A: Statistical Mechanics and its Applications*, 121805.
- Nedkovski, V., Stojkoski, V., & Guerci, M. (2019). How motivational orientation determines the pattern of advice-seeking relationships within organizational contexts? In *Proceedings of the Fourth Agent-Based Models of Organizational Behavior (ABMO4) Workshop 2019*.
- Basnarkov, L., Stojkoski, V., Utkovski, Z., & Kocarev, L. (2019). Correlation patterns in foreign exchange markets. *Physica A: Statistical Mechanics and its Applications*, 525, 1026-1037.
- Santa, M., Stojkoski, V., Josimovski, M., Trpevski, I., & Kocarev, L. (2019). Robust determinants of companies' capacity to innovate: a Bayesian model averaging approach. *Technology Analysis & Strategic Management*, 1-14.

2018 –

- Disoska, E. M., Tevdovski, D., Toshevska-Trpchevska, K., & Stojkoski, V. (2018). Evidence of innovation performance in the period of economic recovery in Europe. *Innovation: The European Journal of Social Science Research*, 1-16.
- Utkovski, Z., Pradier, M. F., Stojkoski, V., Perez-Cruz, F., & Kocarev, L. (2018). Economic complexity unfolded: Interpretable model for the productive structure of economies. *PloS one*, 13(8), e0200822.
- Stojkoski, V., Utkovski, Z., Andre, E., & Kocarev, L. (2018). Multiplex Network Structure Enhances the Role of Generalized Reciprocity in Promoting Cooperation. In *Proceedings of the 17th International Conference on Autonomous Agents and MultiAgent Systems*. International Foundation for Autonomous Agents and Multiagent Systems, 2018.
- Stojkoski, V., Utkovski, Z., Basnarkov, L., & Kocarev, L. (2018). Cooperation dynamics of generalized reciprocity in state-based social dilemmas. *Physical Review E*, 97(5), 052305.
- Pradier, M. F., Stojkoski, V., Utkovski, Z., Kocarev, L., & Perez-Cruz, F. (2018, April). Sparse three-parameter restricted Indian buffet process for understanding international trade. In *2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)* (pp. 2476-2480). IEEE.

2017 –

- Stojkoski, V., Dimitrova, T., Jovanovski, P., Sokolovska, A., & Kocarev, L. (2017, September). Local Diffusion Versus Random Relocation in Random Walks. In *International Conference on ICT Innovations* (pp. 57-66). Springer, Cham.
- Utkovski, Z., Stojkoski, V., Basnarkov, L., & Kocarev, L. (2017). Promoting cooperation by preventing exploitation: The role of network structure. *Physical Review E*, 96(2), 022315.
- Stojkoski, V., Popova, K., & Tevdovski, D. (2017). Financial Development and Growth: Panel Cointegration Evidence from South-Eastern and Central Europe.
- Stojkoski, V., & Kocarev, L. (2017). The Relationship Between Growth and Economic Complexity: Evidence from Southeastern and Central Europe.

2016 –

- Stojkoski, V., Utkovski, Z., & Kocarev, L. (2016). The impact of services on economic complexity: service sophistication as route for economic growth. PloS one, 11(8), e0161633.

PROJECTS

Optimization of Economic Complexity

2023-present

funded by: *Datawheel and The Statistical Centre of Abu Dhabi*

Worked as consultant for the Statistical Centre of Abu Dhabi to economic complexity optimization methods.

Trade Consultant

2023-2025

funded by: *The World Bank*

Worked as an expert consultant for the World Bank to develop export strategies for several countries.

Economic Complexity and Multidimensional Poverty

2023-2025

funded by: *The World Bank*

Worked as an expert consultant for the World Bank to develop an economic complexity approach to multidimensional poverty

Evaluation of UNICEF Interventions Supporting the Social Protection Reform in North Macedonia

2023

funded by: *UNICEF*.

I supported the evaluation of interventions in social protection reform in North Macedonia by analyzing micro-data from the European Union Statistics on Income and Living Conditions survey 2021 (EU-SILC 2021).

Artificial and Natural Intelligence

Toulouse Institute Research in Economic Complexity

2022-present

funded by: *Agence nationale de la recherche*

Research and policy work in Economic Complexity

The Trade Policy Strategy 2.0 for North Macedonia

2022

funded by: *The World Bank*

I consulted with the World Bank on the development of the smart specialization strategy for North Macedonia.

Publication: The Trade Policy Strategy 2.0 for North Macedonia

Diffusion and random search in heterogeneous media

2021-present

funded by: *German Research Society (DFG)*

Research on the role of randomness in economic mobility and inequality.

Spending efficiency in primary and secondary education

2021

funded by: *UNICEF*

Worked as an expert consultant for the Ministry of Education and Science of North Macedonia, UNICEF and the World Bank to develop formulas for sustainable financing of public primary and secondary education and mechanisms for the optimization of the network of primary schools.

Improving the local budget processes in North Macedonia

2020-2021

funded by: *International Center for Local Democracy*

Policy Brief Report

Center for building public policies

2020-2021

funded by: *Civica Mobilitas*

Worked as an expert in the development of training programs for civil society organizations, focusing on fact-based policy.

Socio-economic impact of COVID-19 in North Macedonia funded by: <i>Westminster Foundation for Democracy</i> Worked as an expert consultant to support and work with the staff of the Parliamentary Budget Office of North Macedonia in preparation of an analysis of the economic and social impact of COVID-19 in the Republic of North Macedonia.	2020-2021
Redistribution of primary schools municipal budgets funded by: <i>Foundation Open Society - Macedonia</i> Ten feasibility studies for investments in primary schools in the Republic of North Macedonia	2020
Random search processes, Levy flights, and random walks on complex networks funded by: <i>German Research Society (DFG)</i> Research on the evolution of cooperation in complex networks.	2017-2019
The infrastructure and the equal development of the primary schools in Macedonia funded by: <i>Foundation Open Society - Macedonia</i> Publication: Infrastructural development and technical and technological equipment in the Primary schools of Republic of Macedonia	2017-2018
Innovative cooperation initiatives funded by: <i>Instrument for Pre-accession Assistance (IPA), European Union</i>	2016-2018
Non-coherent communication for future wireless networks funded by: <i>German Research Society (DFG)</i> Reports on the topic of Economic complexity.	2015-2016
The Impact of Government Subsidies on Foreign Direct Investment, Versus Their Impact on Macedonia's Economic Growth funded by: <i>The United States Agency for International Development</i> Publication: The role of government subsidies on FDI, against their effect on economic growth	2015-2016

AWARDS

2022 –

- Best Social Scientist of the University of Ss. Cyril and Methodius University in Skopje, North Macedonia

2021 –

- Best Young Social Scientist of North Macedonia