DÁVID KRISZTIÁN NAGY

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Contact Information

Centre de Recerca en Economia Internacional
Ramon Trias Fargas, 25-27
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Employment

Junior Researcher, CREI, 2016 to present
Adjunct Professor, Universitat Pompeu Fabra and Affiliated Professor, Barcelona GSE, 2016 to present
Co-Editor, Regional Science and Urban Economics, 2020 to present
Visiting Professor, Columbia University, Spring 2019
Visiting Scholar, Minneapolis Fed Opportunity and Inclusive Growth Institute, September and October 2017

Education

Princeton University, 2010 to 2016
Ph.D. in Economics – thesis: "Essays in Economic Geography"

Central European University, Budapest, Hungary, 2008 to 2010
M.A. in Economics (with distinction)

University of Pannonia (Pannon Egyetem), Veszprém, Hungary, 2003 to 2008
MSc. in Economics (with distinction)

Fields of Research

International Trade, Economic Geography, Economic Growth

Publications

"Evaluating the economic cost of coastal flooding" (with Klaus Desmet, Robert E. Kopp, Scott A. Kulp, Michael Oppenheimer, Esteban Rossi-Hansberg and Benjamin H. Strauss). *American Economic Journal: Macroeconomics*, forthcoming.

"The geography of development" (with Klaus Desmet and Esteban Rossi-Hansberg). *Journal of Political Economy* 126(3), 903–983, 2018.

"Asia's geographic development" (with Klaus Desmet and Esteban Rossi-Hansberg). *Asian Development Review* 34(2), 1–24, 2017.

"The effect of uncertainty on exports – A gravity approach" (with Ildikó Virág-Neumann, in Hungarian). *Külgazdaság* 57(3-4), 89–106, 2013.

"Information sharing, risk premium, and interest rates – An international comparison" (with Iván Major, in Hungarian). *Hitelintézeti Szemle* 7(3), 238–264, 2007.

Working Papers

"Local sectoral specialization in a warming world" (with Bruno Conte, Klaus Desmet and Esteban Rossi-Hansberg)

This paper quantitatively assesses the world's changing geography and sectoral specialization due to global warming. It proposes a two-sector dynamic spatial growth model that incorporates the relation between economic activity, carbon emissions, and temperature. The model is taken to the data at the 1° by 1° resolution for the entire world. Over a 200-year horizon, rising temperatures consistent with emissions under Representative Concentration Pathway 8.5 push people and economic activity northwards to Siberia, Canada, and Scandinavia. Compared to a world without climate change, clusters of agricultural specialization shift from Central Africa, Brazil, and India's Ganges Valley, to Central Asia, parts of China and northern Canada. Equatorial latitudes that lose agriculture specialize more in non-agriculture but, due to their persistently low productivity, lose population. By the year 2200, predicted losses in real GDP and utility are 6% and 15%, respectively. Higher trade costs make adaptation through changes in specialization more costly, leading to less geographic concentration in agriculture and larger climate-induced migration.

"All aboard: The effects of port development" (with César Ducruet, Réka Juhász and Claudia Steinwender)

This paper examines the effects of port development on the economy. By using scarce local land intensively, ports put pressure on local land prices and crowd out other forms of economic activity. We use the introduction of containerized shipping – a technology that substantially increased land requirements at the port – to estimate the effects of port development. We find an important role for the crowding-out effect both at the local and at the aggregate level. First, we show that the causal effect of the shipping boom caused by containerization on local population is *zero* – port development increases city population by making a location more attractive to firms and consumers, but this well-known market access effect is fully offset by the crowding-out mechanism. Second, to measure the aggregate implications, we add endogenous port development to a standard quantitative model of cross-city trade. Through the lens of this model, we estimate that containerization increased aggregate world welfare by 3.95%. However, relative to the positive welfare effects of a trade-cost reduction in standard models, our model implies a sizeable welfare cost associated with the increased land-usage of ports, partly offset by welfare gains from endogenous specialization based on comparative advantage across port- and non-port activities. In terms of the distributional effects, we find that initially poorer countries gained more from containerization as they had a comparative advantage in port development.

"Quantitative economic geography meets history: Questions, answers and challenges"

A rapidly growing literature uses quantitative general equilibrium models of economic geography to study the economic impact of historical events such as the railroad revolution, industrial take-off, structural transformation and wars. I identify three key challenges facing this literature: the availability of historical data, the tractability of model structure, and issues related to identification. I review the literature by discussing how it has been addressing each of these challenges. While doing so, I point out the rich set of questions that this literature can address, as well as the methodological innovations it has conducted to answer these questions.

"Hinterlands, city formation and growth: Evidence from the U.S. westward expansion"
Second revise and resubmit, *Review of Economic Studies*.
I study how geography shaped city formation and aggregate development in the United States prior to the Civil War. To guide my analysis, I first present a conjecture that cities' farm hinterlands fostered both city development and aggregate growth: the *hinterland hypothesis*. The hinterland hypothesis has rich implications on how various elements of U.S. geography – railroads, changes in U.S. political borders, increasing U.S. population, and international trade – affected city formation and U.S. growth. To quantitatively evaluate the hinterland hypothesis and its implications, I assemble a novel historical dataset on population, trading routes and agricultural productivity at a high spatial resolution, and combine it with a dynamic quantitative model of economic geography. I find evidence for the hinterland hypothesis by showing that the model can quantitatively replicate the key patterns of U.S. urbanization and city formation. Finally, I conduct a series of counterfactuals in the model to quantify the effect of geography on cities and growth, guided by the implications of the hinterland hypothesis. Results indicate that railroads were responsible for 8.2% of urban population in 1860 and for 27% of real GDP growth between 1830 and 1860. The effect of international trade was similar in magnitude, while population growth slowed down urbanization and GDP growth. The effect of political border changes was small during the period.

"Trade and urbanization: Evidence from Hungary"
Revise and resubmit, *American Economic Journal: Microeconomics*.
I study how trade affects urbanization and welfare. To guide my investigation, I first develop a quantitative model of economic geography in which benefits from trading drive agglomeration around locations where trading activity takes place. As a result, increasing trade leads to urbanization and welfare gains. The model provides a simple formula according to which the degree of urbanization around trading locations is a sufficient statistic for the real income gains from trade. Next, I estimate the model using exogenous variation in trade due to the redrawing of Hungary's borders after the First World War. Besides explaining the decrease in urbanization near the country's new borders, the model also provides a tool to measure real income losses at any location, which are unobserved in the data. I find that the effects of the new borders on urbanization and real income are substantially heterogeneous across locations, due to the rich geography of frictions to trade and labor mobility.

"Bridges" (with Roc Armenter and Miklós Koren)
We build a continuous-space theory of trade in which people in a region agglomerate to exploit trading opportunities with another region. The regions are separated by a river, which can be crossed anywhere, but more cheaply at bridges. In the model, most trade takes place via bridges, leading to a key prediction that population density declines with distance to the bridge. We derive additional predictions about the spatial distribution of population and test them on current high-resolution population density data around twelve major American rivers. The data are mostly consistent with our model. In a historical event study of 19th-century bridges on these rivers, we find that the neighborhood of bridges developed faster after the bridge was built. Also, the two sides of the bridge converged in development, highlighting the connecting role of the bridge. More generally, our results suggest that economies of density arising from transport infrastructure can help explain why and where people agglomerate.

Work in Progress

"Human capital accumulation in space" (with Klaus Desmet and Esteban Rossi-Hansberg)
"The long-run consequences of specialization" (with Stephan Heblich, Alex Trew and Yanos Zylberberg)

Conference and Seminar Presentations

2020 Institute of Economics – Hungarian Academy of Sciences (MTA KTI), Applied Economics Webinar (HKUST, NUS, Taiwan National and U Tokyo – keynote speaker), 2020 Virtual Meeting of the Urban Economics Association

2019 Columbia, Penn State, University of Manchester, University of Murcia, CESifo Global Area Conference, Paris Trade Seminar, NES Moscow, NBER Urban Economics, Yale, Firm Location and Economic Geography Workshop (Paris), CURE (London), EIIT (Boulder, CO), Singapore Management University Conference in Urban and Regional Economics

2018 Universitat de Barcelona, Tel Aviv University, Hong Kong University, Singapore Management University, Universitat Autònoma de Barcelona, SED, Cities and the Environment Workshop (Potsdam), ETH Zürich, 13th Meeting of the Urban Economics Association, University of Padua, LSE

2017 Transpyrenean Macro Workshop, NBER International Trade and Investment, 1st Conference of the Catalan Economic Society, Barcelona Summer Forum, SED, SAET, NBER Urban Economics, KTI Nyári Műhely, Columbia, Minneapolis Fed, Universitat Autònoma de Barcelona

2016 Philadelphia Fed, Barcelona Summer Forum, SED, North American Meetings of the Regional Science Association, University of St. Andrews, UC Berkeley, RIDGE Uruguay

2015 Colloque sur la croissance économique et le développement (Montréal), Minneapolis Fed Junior Scholar Conference, European Winter Meeting of the Econometric Society, MKE Conference

Teaching Experience

Spring 2019	Topics in Trade and Growth, Columbia University
Spring 2017, 2018; Winter 2019, 2020	Topics in Economic Geography, Universitat Pompeu Fabra
Fall 2018, 2019	Advanced Macro I (Trade and Growth), Universitat Pompeu Fabra
Spring 2013, 2014, 2016	ECO 202, Statistics and Data Analysis, Princeton University
Fall 2015	ECO 100, Introduction to Microeconomics, Princeton University
Fall 2013	ECO 310, Microeconomic Theory, Princeton University
Fall 2006 to Fall 2008	Statistics I and II, University of Pannonia

Professional Activities

Research Affiliate, CEPR International Trade and Regional Economics and Macroeconomics and Growth
Research Network Affiliate, CESifo
Referee for: AEJ Applied Economics, AEJ Macroeconomics, Canadian Journal of Economics, Dynamic Games and Applications, Economic Development and Cultural Change, Econometrica, Economic Theory, International Economic Review, Journal of Development Economics, Journal of Economic Dynamics and Control, Journal of Economic Geography, Journal of Economic Theory, Journal of the European Economic Association, Journal of Geographical Systems, Journal of International Economics, Journal of Urban Economics, National Tax Journal, Quarterly Journal of Economics, Review of Economic Dynamics, Review of Economic Studies, Review of International Economics.

Research Grants

Spanish Ministry of Science and Innovation Grant PID2019-111691RA-I00.
Spanish Ministry of Science and Innovation, Juan de la Cierva – Grant (FJCI-2017-3428), 2019–2020.
Generalitat de Catalunya, AGAUR Grant (2017SGR1393), 2017–2020.
Barcelona GSE SEED Grant for the project "Growth and trade in a world of cities," 2016–2017.
Generalitat de Catalunya, AGAUR Grant (2014SGR830), 2014–2016.

Honors, Scholarships and Fellowships

2019	Robert E. Lucas Jr. Prize, Journal of Political Economy
2019	Distinguished CESifo Affiliate Prize, CESifo Global Area Conference
2015 to 2016	Fellowship, International Economics Section, Princeton University
2014 to 2015	Fellowship of Woodrow Wilson Scholars, Princeton University
2010 to 2014	Princeton University Graduate Fellowship
2013	Harry G. A. Seggerman '49 Prize in International Economics, Princeton University
2013	Marimar & Cristina Torres Award for best third-year paper, Princeton University
2010	Outstanding Academic Achievement Award, Central European University
2008	Academic Pro-Rector's Excellence Award, Central European University
2007	1st prize with Rita Németh at the National Conference of Scientific Students' Associations (OTDK), Miskolc, Hungary