

# DÁVID KRISZTIÁN NAGY

CREI

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## Contact Information

Centre de Recerca en Economia Internacional  
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Spain

## Employment

Junior Researcher, CREI and Universitat Pompeu Fabra, 2016 to present  
Visiting Scholar, Minneapolis Fed Opportunity and Inclusive Growth Institute, September and October 2017

## Education

Princeton University, 2010 to 2016  
Ph.D. in Economics  
Thesis Title: "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

Primary Fields	International Trade, Economic Geography
Secondary Fields	Economic Growth

## Publications

"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). *Hitelintézet Szemle*, 7(3): 238–264, 2007.

## Research Papers

*"City location and economic development"*

I present a dynamic model of the U.S. economy with trade, labor mobility, endogenous growth and realistic geography to examine the relationship between spatial frictions, city formation and aggregate development. In

the model, a subset of locations endogenously specialize in innovative industries that are subject to economies of scale. This leads to the formation and development of cities. Spatial frictions affect innovation, thus aggregate growth, by shaping the locations and sizes of cities. I take the model to historical U.S. data at a 20 by 20 arc minute spatial resolution. I show that the model can quantitatively replicate the large population reallocation toward the West and the rapid urbanization in the 19th century, as well as various moments of the location and growth of newly forming cities. I use the model to quantify how the construction of the U.S. railroad network affected city formation, aggregate output and growth. Results indicate that railroads were responsible for 27% of U.S. growth before the Civil War, increasing U.S. real GDP by 9.3% in 1860. I also show that the formation and development of cities amplified the effect of railroads on real GDP by at least 18%.

*“The geography of development”*(with Klaus Desmet and Esteban Rossi-Hansberg)

Forthcoming in the *Journal of Political Economy*.

We study the relationship between geography and growth. To do so, we first develop a dynamic spatial growth theory with realistic geography. We characterize the model and its balanced growth path and propose a methodology to analyze equilibria with different levels of migration frictions. Different migration scenarios change local market size and therefore innovation incentives and the evolution of technology. We bring the model to the data for the whole world economy at a  $1^\circ \times 1^\circ$  geographic resolution. We then use the model to quantify the gains from relaxing migration restrictions as well as to describe the evolution of the distribution of economic activity under the different migration scenarios. Our results indicate that fully liberalizing migration would increase welfare about three-fold and would significantly affect the evolution of particular regions of the world.

*“Border effects and urban structure”*

I propose a general model of economic geography to investigate the effect of border changes on the spatial distribution of population. The total effect is decomposed into a standard “local effect” related to the change in distance from borders, and a novel “global effect” related to centrality before the border change. The global effect is especially strong in economies with a dominant central region that is home to a large fraction of the country's population. Conforming to this prediction, I show that the global effect played an important role in the population reallocation in Hungary after border changes in 1920.

*“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 six 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.

## **Research Papers in Progress**

*"Trade costs and the distribution of economic activity within and across countries"* (with Klaus Desmet and Esteban Rossi-Hansberg)

*"Transit trade and economic geography"* (with Roc Armenter and Miklós Koren)

*"Financial shocks, capital accumulation and skill-biased technical change across space"* (with Ildikó Magyari)

## **Conference and Seminar Presentations**

- 2018 Tel Aviv University, Hong Kong University, Singapore Management University, SED (scheduled)  
2017 Transpyrenean Macro Workshop, NBER International Trade and Investment, 1<sup>st</sup> Conference of the Catalan Economic Society, Barcelona Summer Forum, SED, SAET, NBER Urban Economics, KTI Nyári Műhely, Columbia, Minneapolis Fed, Autonòma Barcelona  
2016 Philadelphia Fed, Barcelona Summer Forum, SED, North American Meetings of the Regional Science Association International, 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 2017 Topics in Economic Geography, 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: A Math Approach, Princeton University  
Fall 2006 to Fall 2008 Statistics I and II, University of Pannonia

## **Professional Activities**

Referee for: AEJ Applied Economics, Economic Theory, International Economic Review, Journal of Development Economics, 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, Quarterly Journal of Economics, Review of Economic Dynamics, Review of International Economics.

## **Honors, Scholarships and Fellowships**

- 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, International Economics Section, 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 to 2008 Scholarship of the City of Veszprém (Veszprém Város Ösztöndíja)  
2006 to 2007 Scholarship of the Republic of Hungary (Közürtásasági Ösztöndíj)  
2007 1<sup>st</sup> prize with Rita Németh at the National Conference of Scientific Students' Associations (OTDK), Miskolc, Hungary