

# DÁVID KRISZTIÁN NAGY

CREI

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## Contact Information

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

## Employment

Junior Researcher, CREI, 2016 to present  
Adjunct Professor, Universitat Pompeu Fabra and Affiliated Professor, Barcelona GSE, 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 Field                      Economic Growth

## Publications

- “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). *Hitelintézet Szemle* 7(3), 238–264, 2007.

## Working Papers

*“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)

Sea-level rise and ensuing permanent coastal inundation will cause spatial shifts in population and economic activity over the next 200 years. Using a highly spatially disaggregated, dynamic model of the world economy that accounts for the dynamics of migration, trade, and innovation, this paper estimates the consequences of probabilistic projections of local sea-level changes under different emissions scenarios. Under an intermediate greenhouse gas concentration trajectory, permanent flooding is projected to reduce global real GDP by an average of 0.19% in present value terms, with welfare declining by 0.24% as people move to places with less attractive amenities. By the year 2200 a projected 1.46% of world population will be displaced. Losses in many coastal localities are more than an order of magnitude larger, with some low-lying urban areas particularly hard hit. When ignoring the dynamic economic adaptation of investment and migration to flooding, the loss in real GDP in 2200 increases from 0.11% to 4.5%. This shows the importance of including dynamic adaptation in future loss models.

*“Trade and urbanization: Evidence from Hungary”*

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.

*“City location and economic development”*

Revise and resubmit, *Review of Economic Studies*.

I present a dynamic model 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 prior to the Civil War, 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%.

*“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**

*“Growth and trade in a world of cities”* (with César Ducruet, Réka Juhász and Claudia Steinwender)

*“Human capital accumulation in space”* (with Klaus Desmet and Esteban Rossi-Hansberg)

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

### **Conference and Seminar Presentations**

- 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, 13<sup>th</sup> Meeting of the Urban Economics Association, University of Padua, LSE
- 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, 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 2017, 2018, Winter 2019 Topics in Economic Geography, Universitat Pompeu Fabra
- Fall 2018 Advanced Macroeconomics 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: A Math Approach, Princeton University
- Fall 2006 to Fall 2008 Statistics I and II, University of Pannonia

### **Professional Activities**

Referee for: AEJ Applied Economics, AEJ Macroeconomics, Canadian Journal of Economics, 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, Quarterly Journal of Economics, Review of Economic Dynamics, Review of Economic Studies, 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, 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	1 <sup>st</sup> prize with Rita Németh at the National Conference of Scientific Students' Associations (OTDK), Miskolc, Hungary