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**Placement Directors:** Professor Ufuk Akcigit, [uakcigit@uchicago.edu](mailto:uakcigit@uchicago.edu), (773) 702-0433

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**Graduate Student Coordinator:** Amy Schulz, [aschulz@uchicago.edu](mailto:aschulz@uchicago.edu), (773) 834-1972

**Education**

The University of Chicago, 2016 to present

Ph.D. Candidate in Economics

Thesis Title: “Aggregate effects of talent allocation: Evidence from the Finnish comprehensive school reform”

Expected Completion Date: June 2022

Ph.D., Mathematics, Aalto University, Finland

M.S., Mathematics, New York University

M.Sc., Mathematics, University of Oulu, Finland

**References:**

Lars Peter Hansen (chair)

University of Chicago

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Joseph Vavra

Univ. of Chicago Booth School of Business

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Thibaut Lamadon

University of Chicago

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Stéphane Bonhomme

University of Chicago

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**Teaching and Research Fields:**

Primary fields: Macroeconomics, Labor Economics

Secondary fields: Macro-Finance, Applied Econometrics

**Teaching Experience:**

Spring, 2021 Economic Policy Analysis, University of Chicago, Instructor

Autumn, 2019 Economic Policy Analysis, University of Chicago, Instructor

Autumn, 2019 Macroeconomics (MBA), Chicago Booth, Teaching Assistant for John Huizinga

Summer, 2019 Macroeconomics (MBA), Chicago Booth, Teaching Assistant for John Huizinga

Spring, 2019 Economic Policy Analysis, University of Chicago, Teaching Assistant for  
Kotaro Yoshida

Winter, 2019 Investments (MBA), Chicago Booth, Teaching Assistant for Niels Gormsen

Autumn, 2018 Macroeconomics (MBA), Chicago Booth, Teaching Assistant for John Huizinga

Summer, 2016 Differential Equations, University of Jyväskylä, Finland, Instructor

**Research Experience and Other Employment:**

2019 Research assistant for Niels Gormsen  
2015 – 2016 University of Jyväskylä, postdoctoral researcher (mathematics)  
2012 – 2015 University of Helsinki, Academy of Finland postdoctoral research fellow (mathematics)  
2010 – 2012 The Boston Consulting Group, Associate

**Honors, Scholarships, and Fellowships:**

2021 Yrjö Jahnsson Foundation Graduate Grant  
2020 Data Acquisition Grant, University of Chicago Dept. of Economics  
2017 CRSP Summer Research Grant, Booth School of Business  
2016 – 2022 Social Science Graduate Fellowship, University of Chicago  
2012 – 2015 Academy of Finland postdoctoral research fellowship in mathematics  
2007 – 2009 Fulbright Foundation Scholarship  
2006 Ernst Lindelöf prize (master's thesis award), The Finnish Mathematical Society

**Professional Activities:**

Referee (mathematics):

Journal de Mathématiques Pures et Appliquées, Nonlinear Analysis: Theory, Methods & Applications, Manuscripta mathematica, Annales Academiæ Scientiarum Fennicæ Mathematica, Journal of Mathematical Analysis and Applications, Applied Mathematics Letters

Conference and Seminar Presentations (economics):

2021 Young Economist Symposium (Princeton)  
2021 16<sup>th</sup> Annual Economics Graduate Student Conference (WUSTL)  
2021 50<sup>th</sup> Annual Meeting, Illinois Economic Association  
2021 Chicago Joint Program and Friends Conference (UChicago)

**Language and Computer Skills:**

Computer Skills: R, Matlab, Mathematica

Languages: English (Fluent), Finnish (native)

**Research Papers:**

“Aggregate effects of talent allocation: Evidence from the Finnish comprehensive school reform”  
(Job Market Paper)

**Abstract:** I consider occupational talent allocation in a structural macro model, where workers have unobservable skill and preference heterogeneity across various occupations. I estimate the model using Finnish administrative data, and find that in the recent past workers' occupational sorting patterns have had negligible effect on aggregate productivity. Nevertheless, talent allocation is important for income inequality. Gender differences in occupational sorting, in particular, explain 3.5 percentage points of the gender earnings gap. I use a 1970s Finnish comprehensive school reform as an instrument to further consider these sorting effects. The reform's differential impact on women's skills and sorting preferences increased aggregate productivity by one percent, half of which was due to differential sorting effects between the genders. The results suggest that occupational sorting effects may be important in the context of schooling reforms affecting the skill distribution.

“A debt-financed real estate boom with an endogenous credit crunch”

**Abstract:** I present a continuous-time macro model of the real estate market, where exogenous relaxation of a financing constraint produces a housing boom as well as a subsequent endogenous credit crunch without an additional shock reversal. I consider two types of agents: (i) productive, but credit constrained, *entrepreneurs* and (ii) patient *savers*, with differing productivity and saving propensities. An exogenous credit liberalization allows the entrepreneurs to increase their ownership of business capital. The savers selling the capital readjust by increasing their portfolio share on housing, creating a housing boom. Different saving propensities between the agents, however, lead to an eventual endogenous reversal with decreasing output and decreasing interest rate during the bust. I also propose a novel house price decomposition, dynamics of which are characterized in a closed form phase diagram. Quantitative analysis suggests that the model is capable of explaining the house price boom preceding The Great Recession.

### Work in Progress:

“Monetary policy with financial frictions and transaction costs”

**Abstract:** I consider a heterogeneous agent cash-in-advance monetary model with banks, firms, and a monetary authority. Firms make portfolio choices between borrowing, capital investments, and holding liquidity while facing a collateral borrowing constraint. Idiosyncratic random shocks, as well as anticipated liquidity needs, force occasional portfolio adjustments, which incur fixed transactions costs. Monetary policy affects real economy through its impact on the credit market, even in absence of New Keynesian nominal rigidities. This provides a new monetary policy transmission mechanism, which does not rely on nominal rigidities.

“Universities, urbanization, and regional development” with Annika Nivala, Mikko Silliman and Tuomo Suhonen

**Abstract:** In 1960s, Finland saw a large expansion of university education with number of new universities established across the country. We build and estimate a structural gravity model to study the effects of this expansion on the local labor markets, taking into account the reform’s equilibrium effects. We use differences-in-differences to identify the reform’s effect and consider the counterfactual development of the aggregate economy had the expansion never taken place, or had the educational expansion been targeted to existing universities.

### Policy work:

Myllärniemi, M. et al. Eroon koronasta working group (2020). Corona-Free Finland: The rationale and methods for elimination of the coronavirus epidemic in Finland. Working group report.

### Publications (mathematics):

On the parabolic Harnack inequality for non-local diffusion equations (with D. Dier, J. Kemppainen, and R. Zacher). *Math Z.* 295 (2020), 1751–1769.

Boundary regularity for the porous medium equation (with A. Björn, J. Björn, and U. Gianazza). *Arch. Rational Mech. Anal.*, 230 (2018), no. 2, 493-538.

On the interior regularity of weak solutions to the 2-D incompressible Euler equations (with J.M. Urbano). *Calc. Var. Partial Differential Equations*, 56, 126 (2017).

Representation of solutions and large-time behavior for fully nonlocal diffusion equations (with J. Kemppainen and R. Zacher). *J. Differential Equations*, 263 (2017), no. 1, 149-201.

Everywhere differentiability of viscosity solutions to a class of Aronsson's equations (with C. Wang and Y. Zhou). *Ann. Inst. H. Poincaré Anal. Non Linéaire*, 34 (2017), no. 1, 119-138.

Decay estimates for time-fractional and other non-local in time subdiffusion equations in  $\mathbb{R}^d$  (with J. Kemppainen, V. Vergara, and R. Zacher). *Math. Ann.*, 366 (2016), no. 3-4, 941-979.

Hölder continuity for parabolic  $Q$ -minima in metric measure spaces (with M. Masson). *Manuscripta Math.*, 142 (2013), no. 1-2, 187-214.

Local Hölder continuity for doubly nonlinear parabolic equations (with T. Kuusi and J.M. Urbano). *Indiana Univ. Math. J.*, 61 (2012), no. 1, 399-430.

Hölder continuity for Trudinger's equation in measure spaces (with T. Kuusi, R. Laleoglu, and J.M. Urbano). *Calc. Var. Partial Differential Equations*, 45 (2012), no. 1-2, 193-229.

Obstacle problem for nonlinear parabolic equations (with R. Korte and T. Kuusi). *J. Differential Equations*, 246 (2009), no. 9, 3668--3680.