Joonas Tuhkuri

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Current Positions

Assistant Professor of Economics, Stockholm University	2023–
Postdoctoral Fellow, Rockwool Foundation Berlin	2022–23
Senior Fellow, Etla	2022–
Research Affiliate, IZA	2023–

Education

PhD in Economics, MIT	2022
MS in Economics, University of Helsinki	2015
BS in Economics, University of Helsinki	2013
Graduate Student Affiliate, Harvard University	2019–22
Visiting Graduate Student, University of Toronto	2014

Selected Awards

Upjohn Institute Dissertation Award	2022
Harvard CES Dissertation Completion Fellowship	2021
35 under 35, HS Visio	2021
Hausman Fellowship, MIT	2020
35 under 35, Kauppalehti	2019
MIT Center for International Studies Grant	2019–20
Kone Foundation Grant	2018
Labor Foundation Grant	2018–20
Stanley and Rhoda Fischer Fellowship, MIT	2017
Emil Aaltonen Foundation Grant	2017–21
Castle Krob International Fellowship, MIT	2017
Kordelin Foundation Grant	2016–20
Yrjö Jahnsson Foundation Grant	2016–20
Fulbright Fellowship	2015
Best Economics Thesis Award, University of Helsinki	2015
Best Economics Student, Väinö Linna Award, University of Helsinki	2015
Best Thesis, ARC Award, The US Embassy in Finland	2015

Research Funding

OP Group Research Foundation ($54k)	2020–21
Ministry of Economic Affairs and Employment ($21k)	2020
Yrjö Jahnsson Foundation ($22k)	2020
Foundation for Economic Education ($20k)	2020
George and Obie Shultz Fund ($17k)	2019–20

Working Papers

New Evidence on the Effect of Technology on Employment and Skill Demand

(with Johannes Hirvonen and Aapo Stenhammar)
under revision for the Quarterly Journal of Economics

We present novel evidence on the effects of advanced technologies on employment, skill demand, and firm performance. The main finding is that advanced technologies lead to increases in employment and no change in skill composition. Our main research design focuses on a technology subsidy program in Finland that induced sharp increases in technology investment in manufacturing firms. Our data directly measure multiple technologies and skills and track firms and workers over time. We demonstrate novel text analysis and machine learning methods to perform matching and to measure specific technological changes. To explain our findings, we outline a theoretical framework that contrasts two types of technological change: process versus product. We document that firms used new technologies to produce new types of output rather than replace workers with technologies within the same type of production. The results contrast with the ideas that technologies necessarily replace workers or are skill biased.

The Economist: *Economists are revising their views on robots and jobs, 2022.*
The Economist: *Leader: The world should welcome the rise of the robots, 2022.*
Wired: *Automation Isn't the Biggest Threat to US Factory Jobs, 2022.*

School vs. Action-Oriented Personalities in the Labor Market

(with Ramin Izadi)
under revision for the Journal of Labor Economics

How do different dimensions of personality predict school vs. labor-market performance? How has the value of these traits changed over time? We answer these questions using data that includes multidimensional personality and cognitive test scores from mandatory military conscription for approximately 80% of Finnish men. We document that some dimensions of noncognitive skills are productive at school, and some dimensions are counterproductive at school but still valued in the labor market. Action-oriented traits predict low school performance but high labor market performance. School-oriented traits, such as dutifulness, deliberation, and achievement striving, predict high school performance but are not independently valued in the labor market after controlling for school achievement. We further document that the labor-market premium to action-oriented personality traits has rapidly increased over the past two decades. To interpret the empirical results, we outline a model of multidimensional skill specialization. The model and evidence highlight two paths to labor-market success: one through school-oriented traits and formal skills, and one through action-oriented traits and informal skills.

Psychological Traits and Adaptation in the Labor Market

(with Ramin Izadi)

Labor markets are in constant change. Which personality traits and skills help workers to deal with a changing environment? This paper documents how responses to labor-market shocks vary by individuals' psychological traits. We construct measures of cognitive ability, extraversion, and conscientiousness using standardized personality and cognitive tests administered during military service to approximately 80% of Finnish men born 1962–1979. We analyze establishment closures and mass layoffs between

1995–2010 and document heterogeneous responses to the shock. Extraversion is the strongest predictor of adaptation: the negative effect of a mass layoff on earnings is about 20% smaller for those with one standard deviation higher scores of extraversion. Conscientiousness appears to have no differential impact conditional on other traits. Cognitive ability and education predict a significantly smaller initial drop in earnings but have no long-term advantage. Our findings appear to be driven directly by smaller dis-employment effects: extraverted and high cognitive-ability individuals find re-employment faster in a similar occupation and industry they worked in before. Extraversion's adaptive value is robust to controlling for pre-shock education, occupation, and industry, which rules out selection into different careers as the driving mechanism. Extraverts are slightly more likely to retain employment in their current establishment during a mass layoff event, but the retention effect is not large enough to explain the smaller earnings drop.

The Surprising Intergenerational Effects of Manufacturing Decline

This paper analyzes the impact of manufacturing decline on children. To do so, it considers local employment structure—characterizing lost manufacturing jobs and left-behind places—high-school dropout rates, and college access in the US over 1990–2010. To establish a basis for causal inference, the paper uses variations in trade exposure from China, following its entry to the WTO, as an instrument for manufacturing decline in the US. While the literature on job loss has emphasized negative effects on children, the main conclusion of this research is that the rapid US manufacturing decline decreased high-school dropout rates and possibly increased college access. The magnitudes of the estimates suggest that for every 3-percentage-point decline in manufacturing as a share of total employment, the high-school dropout rate declined by 1 percentage point. The effects are largest in the areas with high racial and socioeconomic segregation and in those with larger African American populations. The results are consistent with the idea that the manufacturing decline increased returns and decreased opportunity costs of education, and with sociological accounts linking working-class environment and children's education.

Work in Progress

Scarcity vs. Surplus: New Evidence on Technology and Labor Supply
(with Jonas Mueller-Gastell)

Does shortage of labor or abundance of labor encourage technology adoption? Are machines and men substitutes so that labor scarcity induces investment in technology, or are they complements so that availability of workers facilitates technology adoption? The project uses local labor supply shocks in Finland at the verge of industrialization to study how technology and labor supply interact. These shocks come from two sources: combat deaths and evacuations from invaded areas into designated towns during the Second World War, 1939–45. The project uses newly digitized local and plant-level data on technology use by type, employment, and organization. We find a positive effect of labor abundance on manufacturing development. Evidence on horsepower per person shows that additional labor does not crowd out capital but complements capital investment. Manufacturing employment share and gross value-added per person increase substantially across all identification strategies, including strategies based on military and evacuation plans.

Work Experience

Research Assistant, MIT, RA to Daron Acemoglu, David Autor, and John Van Reenen	2017–19
Visiting Researcher, Aalto University	2017–
Visiting Researcher, Etla Economic Research	2017–22
Researcher, Etla Economic Research	2014–16
Research Intern, Ministry of Finance of Finland	2013

Teaching Experience

PhD Labor Economics, MIT, TA to David Autor and Arindrajit Dube	2020
Introduction to Economics, University of Helsinki, TA	2012–14
Big Data, Executive Education Workshops	2015–

Publicly Available Data

ETLAnow: Real-time unemployment forecasts based on Google search data. 2014–
Featured in The Washington Post, Bloomberg, Chicago Tribune, YLE, and widely in the global media.
Bloomberg: *Understanding Europe's Economy in 100 Billion Google Searches, 2016.*

Occupation Codes: This package harmonizes Finnish occupation codes.
Industry Codes: This package harmonizes Finnish industry codes (2 and 3-digit levels).
County and Subregion Codes: This package harmonizes Finnish county codes into consistent regions.

Selected Presentations

2023: ASSA, Paris School of Economics, University of Oslo, European Labor Symposium for Early Career Economists, Nuremberg Research Seminar in Economics (including upcoming).

2022: NBER Summer Institute, Columbia Business School, University of Wisconsin-Madison, ETH Zurich, Econometric Society, Stockholm University, Uppsala University, LMU Munich, Berlin School of Economics, Humboldt University of Berlin, BI Oslo, IFN, MIT Industrial Performance Center, CReAM, CESifo.

pre–21: MIT, Harvard, Boston University, European Parliament, European Commission, Helsinki GSE, Aalto University, Etla Economic Research, Labore, University of Helsinki, University of Jyväskylä, Ministry of Finance of Finland, Ministry of Economic Affairs and Employment of Finland.

Professional Service

Referee service: American Economic Review, Quarterly Journal of Economics, Journal of Public Economics, Labour Economics, Journal of Applied Econometrics, Journal of Human Resources.

Department service: Berlin School of Economics PhD Recruiting Committee 2023, RF Berlin Job Market Hiring Committee 2022, Labor Coffee, MIT, 2020–22.

Reports

Policy Brief: New Evidence on the Effect of Technology on Employment and Skill Demand, ETLA Brief 108, 2022 (with J. Hirvonen and A. Stenhammar).

Forecasting Unemployment with Google Searches, ETLA Working Paper 35, 2016.

ETLAnow: A Model for Forecasting with Big Data, ETLA Report 54, 2016.

Big Data: Do Google Searches Predict Unemployment?, University of Helsinki, 2015.

Big Data: Google Searches Predict Unemployment in Finland, ETLA Report 31, 2014.

International Sourcing in Finland and Sweden, ETLA B 275, 2017 (with Hans Lööf et al.).

Globalization Threatens One Quarter of Finnish Employment, ETLA Brief 46, 2016.

Finland in Global Value Chains, Prime Minister's Office 11/2016, 2016 (with J. Ali-Yrkkö et al.)

Offshoring R&D, CESIS Working Paper 439, 2016 (with H. Lööf, A. Mohammadi, and P. Rouvinen).

Trade and Innovation: Matched Worker-Firm-Level Evidence, ETLA Working Paper 39, 2016.

Women and Men in Central Government 2012, Ministry of Finance, 20/2013, 2013.

Basic Info

Fields of Specialization: Labor Economics, Technology and Innovation, Psychology and Economics.
Languages: English (fluent), Finnish (native), Swedish (basic)
Military service: Finnish Defence Forces, 2010.
Citizenship: Finland (EU)

References

Professor **Daron Acemoglu**, MIT Department of Economics, daron@mit.edu.

Professor **David Autor**, MIT Department of Economics, dautor@mit.edu.

Professor **Simon Jäger**, MIT Department of Economics and IZA, sjaeger@mit.edu.

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