MIT Economics

# JOONAS TUHKURI


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**DOCTORAL STUDIES**

Massachusetts Institute of Technology (MIT)
PhD, Economics, Expected completion June 2022
DISSERTATION: "Essays on Technological Change and Work"

DISSERTATION COMMITTEE AND REFERENCES

Professor Daron Acemoglu
MIT Department of Economics
77 Massachusetts Avenue, E52-446
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Professor David Autor
MIT Department of Economics
77 Massachusetts Avenue, E52-438
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Professor Simon Jäger
MIT Department of Economics
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**PRIOR EDUCATION**

University of Helsinki — 2015; 13
MA and BA in Economics

University of Toronto — 2014
Visiting Graduate Student in Economics

**CITIZENSHIP** Finland **GENDER:** Male

**LANGUAGES** English (fluent), Finnish (native), Swedish (intermediate)

**FIELDS** Primary Fields: Labor Economics

Secondary Fields: Applied Microeconomics, Technology and Innovation

**TEACHING EXPERIENCE**

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|---|---|
| Labor Economics (graduate, MIT course 14.662)<br>Teaching Assistant to Profs. David Autor and Arindrajit Dube | 2020 |
| Introduction to Economics, TA (undergraduate, U of Helsinki) | 2013; 12 |

**RELEVANT POSITIONS**

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|---|---|
| Research Assistant to Profs. Daron Acemoglu, David Autor, and John Van Reenen | 2017–19 |
| Researcher at ETLA Economic Research | 2014–16 |

**FELLOWSHIPS, HONORS, AND AWARDS**

| | |
|---|---|
| Harvard CES Dissertation Completion Fellowship | 2021 |
| "35 under 35" in Finland, Helsingin Sanomat | 2021 |
| Hausman Fellowship, MIT | 2020 |
| "35 under 35" in Finland, Kauppalehti | 2019 |
| "Future Makers of 2019," YLE | 2019 |
| MIT Center for International Studies Grant | 2019; 20 |
| Kone Foundation Grant | 2018 |
| Labour Foundation Grant | 2018; 19; 20 |
| Stanley and Rhoda Fischer Fellowship, MIT | 2017 |
| Emil Aaltonen Foundation Grant | 2017; 18; 20 |
| Castle Krob International Fellowship, MIT | 2017 |
| Yrjö Jahnsson Foundation Grant | 2016; 20 |
| Fulbright Fellowship | 2015 |
| Award for the Best Economics Thesis, University of Helsinki | 2015 |
| Award for the Best Economics Student, University of Helsinki | 2015 |
| Award for the Best Thesis, U.S. Embassy in Finland | 2015 |

**RESEARCH FUNDING**

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|---|---|
| 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 |
| ETLA Economic Research<br>(ongoing collaboration with a private research institute) | 2019– |

**PROFESSIONAL ACTIVITIES**

Referee for: *American Economic Review, Labour Economics, Journal of Applied Econometrics*

Organizer for: MIT Labor Discussion Group

## RESEARCH PAPERS

**"New Evidence on the Effect of Technology on Employment and Skill Demand" (Job Market Paper)**
(with Johannes Hirvonen and Aapo Stenhammar)

We present new evidence on the effects of advanced technologies on employment, skill composition, and firm performance in manufacturing firms. Our primary research design focuses on a technology subsidy program in Finland that induced sharp increases in technology supply to specific firms. Our data track firms and workers over time and directly measure multiple technologies and skills. We demonstrate novel text analysis and machine learning methods to perform matching and to measure specific technological changes. The main finding is that advanced technologies led to increases in employment and no change in skill composition. To explain our finding, 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 are in contrast with the ideas that technologies necessarily replace workers or increase skill demand.

**"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.

**"School vs. Action-Oriented Personalities in the Labor Market"**
(with Ramin Izadi)

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.

**RESEARCH 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.

**OTHER PROJECTS**

**ETLAnow:** Unemployment forecasts using Google data*:* www.etla.fi/en/etlanow, *2014–*

*Press coverage: The Washington Post, Bloomberg, Chicago Tribune, YLE*