

JONATHAN DAVID TIMMIS
Curriculum Vitae

Address: Office of the Chief Economist for East Asia and the Pacific, World Bank, 1818 H Street NW, Washington DC 20433, USA.

E-mail: jtimmis@worldbank.org

Nationality: British

Personal homepage: www.jonathantimmis.com

EDUCATION:

- 2010 – 2015 **PhD Economics (without corrections)**, University of Nottingham
Thesis Title: “Internet Diffusion and International Trade”
- 2004 – 2005 **MSc Economics (*Summa Cum Laude* equivalent)**, University of Nottingham
Ranked 1st in class of 2004-5
- 2001 – 2004 **BSc Economics (*Summa Cum Laude* equivalent)**, University of Nottingham
Ranked 1st in class of 2001-4

EMPLOYMENT:

- 2020 – present **Economist – East Asia and Pacific Chief Economist’s Office, World Bank.**
Key part of research collaborations on the firm-level impact of COVID and draft inputs for East Asia and Pacific (EAP) flagship publications, including the biannual “EAP update”. Leading a joint Harvard – IFC – World Bank project on firm technology adoption in emerging markets. Review and provide inputs for publications and operations in the region. Lead EAP chief economist’s office seminar series.
- 2019 – 2020 **Research Economist – IFC, World Bank Group.**
Responsibilities involved collaborating on OECD-IFC-World Bank report examining the importance of large firms for development outcomes and their growth paths over their life cycle. Leading a chapter on modern industrial policy with Professor Philippe Aghion (Harvard University) and IFC colleagues, to be part of an IFC flagship publication on Creating Markets.
- 2016 – 2019 **Research Economist – Productivity and Business Dynamics Division, OECD.**
Responsible for research in the areas of Global Value Chains (GVCs), productivity and digitization – managing collaborations with external academics and policymakers. Developed new evidence on industry concentration trends across countries, and the link to intangible investments at the industry and firm level. Extensive experience communicating policy implications, through drafting policy notes, chapters of flagship reports, G20 background papers and presenting to senior policymakers at OECD committees.
- 2014 – 2016 **Economic Advisor – Overseas Development Institute Fellowship, Rwanda: Rwanda Energy Group and Ministry of Trade and Industry.**
Led a cross-ministry team to develop Rwanda’s first energy demand forecast, developing and advising on household survey implementation and matching to large dataset of previously unused transaction-level data on energy purchases. Developed the first quarterly private sector development report, using detailed micro-level customs data on firm performance.
- 2010 – 2014 **Graduate Teaching Assistant – University of Nottingham.**
Led tutorials and guest lectures for undergraduate modules: International Economics, Microeconomics, Macroeconomics and Applied Econometrics.

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2005 – 2010 **Actuary – PriceWaterhouseCoopers LLP.**
Led an inter-disciplinary team for a major UK insurer to build a monte-carlo simulation stochastic model to value financial options and integrate into their business processes. Managed teams with varied backgrounds, including actuaries, accountants, IT specialists and regulatory experts.

ACADEMIC AND POLICY PUBLICATIONS:

- 2018 **“Broadband Infrastructure, ICT use and Firm Performance: Evidence for UK Firms”, *Journal of Economic Behavior and Organization*, 155, pp. 110-139** with Tim DeStefano and Richard Kneller.
We use the arrival of a new communication technology, broadband, to study the causal effects of heterogeneous types of ICT on firm performance. We construct instruments using zipcode-level geographic variation in the pre-existing telephone network, which determines the firm-level availability and speed of broadband. In turn, we find that ICT causally affects firm size, but not productivity.
- 2018 **“The Changing Structure of GVCs: Are Hubs Central for Firm Performance?”, *International Productivity Monitor*, 34, pp. 64-80** with Chiara Criscuolo.
We use network “centrality” metrics to reflect position with Global Value Chains (GVCs), identifying central hubs and peripheral countries and sectors. We find there have been large shifts in some manufacturing value chains, but rising importance of some services. Using cross-country firm-level data, central hubs can play a role in the catch up of less productive firms and countries.
- 2017 **“The Relationship between Global Value Chains and Productivity”, *International Productivity Monitor*, 32, pp. 61-82** with Chiara Criscuolo.
We review the evidence linking Global Value Chains (GVCs) and productivity. We outline the key trends uncovered in GVCs, and how these relate to productivity and the policy implications.
- 2016 **“ICT and Exporting: The Effects of Broadband on the Extensive Margin of Business Service Exports”, *Review of International Economics*, Vol. 24(4), pp. 757-796** with Richard Kneller.
We provide empirical evidence for the effects of broadband use on the firm-extensive margin of UK service exports. To deal with endogeneity we build a novel instrument that exploits exogenous variation in access to broadband technologies due to the historic telephone network. We find evidence for a causal effect from broadband on trade in business services, but no evidence for an effect on trade in services more generally.

WORKING PAPERS:

- 2020 **“Cloud Computing and Firm Growth”** with Tim DeStefano and Richard Kneller.
Revise and Resubmit.
The arrival of the cloud has enabled a shift in the nature of ICT use, from investment in sunk capital to a pay-on-demand service. This paper uses new firm-level data to examine the impact of cloud on firm growth in the UK, using zipcode-level instruments of high-speed fiber availability and speeds. We find that cloud leads to the growth of young firms in terms of employment and productivity. For older firms we find no such growth, but instead these firms reorganize activity by closing plants and moving employment further from the headquarters.
- 2020 **“The Digital Divide: Universal Broadband and Firm Performance”** with Tim DeStefano and Richard Kneller. *Revise and Resubmit.*

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We exploit a 5-year geographical discontinuity in the availability of rural broadband, stemming from an historical accident. Using a regression discontinuity design, our analysis strongly suggests that broadband leads to increases in firm scale and productivity in urban areas, but has no statistically discernible effect on the performance of rural firms.

2020 **“Participation in the Global Value Chains and Domestic Technology Change: Evidence from Japanese Patent-Firm-Matched Data”** with Antonin Bergeaud, Chiara Criscuolo, Keiko Ito and Kenta Ikeuchi. *Revise and Resubmit.*

This paper explores how changes in both position and participation in Global Value Chain networks affect firm innovation. The analysis combines matched patent-firm data for Japan with measures of GVC network centrality and GVC participation. Japan’s position in the GVCs has shifted from being at the core of Asian value chains towards the periphery relative to other countries in the network, i.e. becoming less “central”. These decreases in forward centrality – from key suppliers - are associated with decreasing firm patent applications.

2020 **“Industry Concentration in Europe and North America”** with Matej Bajgar, and Chiara Criscuolo. *Submitted.*

Featured in The Economist – “Special Report on Competition” (15 November 2018) and in Harvard Business Review – “Superstar Firms Are Running Away with the Global Economy” (14 November 2019)

We present new evidence on industry concentration trends in Europe and in North America. The paper uses two novel data sources: representative firm-level concentration measures from the OECD MultiProd project, and business-group-level concentration measures using matched Orbis-Worldscope-Zephyr data. We find a clear increase in industry concentration in Europe and North America, both for manufacturing and nonfinancial services, which is not driven by digital-intensive sectors.

2020 **“Cloud and Big Data Diffusion: Are Capital Incentives and Incentive?”** with Tim DeStefano, Nick Johnstone and Richard Kneller.

Cloud computing allows firms to access digital technologies through an “on-demand” service. However, policies are often targeted towards investment in physical ICT capital, rather than as a service. We use the introduction of a UK tax incentive for physical capital investment – the Annual Investment Allowance (AIA) – to examine firm investment in physical ICT vs cloud computing. Our results show that the AIA increases investment in total capital and ICT capital as one would expect; but reduces adoption of the cloud and big-data analytics. Policies with a traditional view of ICT may inadvertently be delaying diffusion of cutting-edge technologies.

2020 **“Supersize Me: Intangibles and Industry Concentration”** with Matej Bajgar, Giuseppe Berlingieri, Sara Calligaris and Chiara Criscuolo.

Featured in Harvard Business Review– “Superstar Firms Are Running Away with the Global Economy” (14 November 2019)

We present new evidence on the growing scale of big businesses in the US, Japan and Europe. We find broad evidence of rising industry concentration across 2002-2014, particularly in industries with the fastest growth in intangible investments – particularly innovation. At the firm-level, we find large firms are disproportionately able to increase their scale, as a result of investments in R&D and patents.

2020 **“Industrial Robotics and Export Quality”** with Tim DeStefano.

Robotics are rapidly becoming a key part of precision processes within modern manufacturing. This paper combines novel data on industrial robotics with cross-country HS 6-digit trade data to estimate the effects of robot use on export quality. We find that robotics lead to a convergence in product quality, with quality growth

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for initially low-quality exports, and this is particularly the case for new varieties and emerging economies.

2020 **“ICT and Capital Saving Technical Change”** with Tim DeStefano and Richard Kneller
We explore whether long-term trends in ICT diffusion led to capital saving, by squeezing greater economic activity into a smaller amount of space. Using new data on building capital and broadband speeds at both the regional and zipcode-level, we find evidence of capital biased technical change.

WORK IN PROGRESS:

- **“Urban economies in Developing and High-Income Countries: A Meta Analysis”** with Arti Grover.
- **“ICT and Public Sector Productivity”** with Tim DeStefano and Frank Nagle.
- **“Buyer-Supplier Reorganization and Firm Productivity”** with Tim DeStefano, Keiko Ito and Richard Kneller.
- **“Large Firms as a Driver of Change in Emerging Economies”** with Alex Ragoussis.
- **“E-commerce adoption during the COVID crisis”** with Alex Ragoussis
- **“COVID-induced technology upgrading and firm performance”** with Tim DeStefano

IT SKILLS:

Stata including Mata (advanced), ArcGIS / QGIS (advanced), SQL (advanced), MS Office including VBA (advanced), PySpark (intermediate), Python (intermediate)

HONORS, SCHOLARSHIPS, AND FELLOWSHIPS:

2018 – present	External Affiliate Researcher, The Nottingham Centre for Research on Globalisation and Economic Policy, University of Nottingham
2017 – present	Research Affiliate, Economics of Digitization, CESifo
2009 – present	Fellow of the Institute and Faculty of Actuaries
2014 – 2016	Overseas Development Institute Fellowship
2013 – 2014	Royal Economic Society (RES) Junior Fellowship
2010 – 2013	Economic and Social Research Council (ESRC) Full Studentship Quota Award for Postgraduate Studies
2011 – 2014	Graduate Teaching Assistant Teaching Excellence Award for Academic Years ending 2012, 2013 and 2014, University of Nottingham