

CURRICULUM VITAE

name: Otto Toivanen
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born: 3rd Oct. 1965 in Turku, Finland.
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EDUCATION

1995 Ph.D. (economics), University of Warwick.
1993 Lic. Sc. (economics), Turku School of Economics and Business Administration.
1990 M.Sc. (economics), Turku School of Economics and Business Administration.

PROFESSIONAL EXPERIENCE

2025- Aalto Distinguished Professor, Aalto University
2017- Professor, Dept. of Economics, Aalto University School of Business.
2018-2025 Academic Director, Helsinki Graduate School of Economics.
2010-2016 Professor, Dept. of Managerial Economics, Strategy and Innovation, KU Leuven.
2004-2010 Director, Helsinki Center of Economic Research (HECER), University of Helsinki, and Finnish Doctoral Programme in Economics (FDPE).
2003-2004 Professor of Technology Management and Policy, Helsinki School of Economics (HSE).
1999-2003 Acting Professor of Technology Management and Policy, HSE.
1998-2003 Assistant Professor of economics, HSE.
1997-1999 Senior research fellow, Academy of Finland and HSE.
1994-1997 Research fellow, Warwick Business School.

VISITING POSITIONS

2018-2020 Visiting Professor, Dept. of Economics, KU Leuven
2016-2018 Visiting Professor, Dept. of Managerial Economics, Strategy and Innovation, KU Leuven.
2015-2017 Visiting Professor, Dept. of Economics, Aalto University School of Business.
2003-2004 Visiting Scholar, Dept. of Economics, University of Berkeley, California.
1999 Visiting Fellow, National Bureau of Economic Research.
1998-1999 Visiting Scholar, Massachusetts Institute of Technology, Dept. of Economics.

OTHER ACADEMIC POSITIONS

Director, Helsinki GSE Situation Room, 3/2020-12/2021.
MaCCI Research Associate 2017-.
ZEW Research Associate 2013 -.
Bank of Finland Research Fellow 2011 -2016.
CEPR Research Fellow 2009 - .
Associate/Senior Research Fellow, Research Institute of the Finnish Economy (ETLA), 2002-.
Docent, Turku School of Economics and Business Administration, 2001-.
Research Fellow, Warwick Business School, University of Warwick, 1997-.

TEACHING

Ph.D.: Empirical Industrial Organization, Applied Microeconometrics, Microeconometrics. M.Sc.: Economics of Technological Innovation, Microeconomics of Banking, Economics of Network Industries, Network economics and digital markets. B.A.: Economics of Strategy/ Industrial Organization, Management of Technology, Managerial Economics, Econometrics.

PUBLICATIONS AND RESEARCH

A. Articles in refereed journals

- Tuomas Takalo, O. Toivanen and Tanja Wahlberg, 2026. Welfare effects of R&D support policies. *RAND Journal of Economics*, forthcoming.
- Philippe Aghion, Ufuk Akcigit, Ari Hyytinen and O. Toivanen, 2024. A year older, a year wiser (and farther from frontier): Invention rents and human capital depreciation, *The Review of Economics and Statistics*, 106, 4, 974-982.
- Philippe Aghion, Ufuk Akcigit, Ari Hyytinen and Otto Toivanen, 2023. Parental education and invention: The Finnish enigma. *International Economic Review*, 6, 2, 453-490.
- Yossi Spiegel, O. Toivanen, 2022. From conference submissions to publication and citations: Evidence from the EARIE conference. *International Journal of Industrial Organization*, 84.
- Norman Maier, Julie Runge Jørgensen, Asger Lunde and O. Toivanen, 2021. Ex-post analysis of the TeliaSonera-Chess 2005 merger. *De Economist*, 169, 2, 141-178.
- A. Hyytinen, Pekka Ilmakunnas, Edvard Johansson and O. Toivanen, 2019. Heritability of lifetime earnings. *The Journal of Economic Inequality*, 17, 319-335.
- A. Hyytinen Frode Steen and O. Toivanen, 2019. Anatomy of cartel contracts. *Economic Journal*, 129, 621, 2155–2191.
- A. Hyytinen, F. Steen and O. Toivanen, 2018. Cartels uncovered. *American Economic Journal: Microeconomics*, 10, 4, 190-222.
- A. Hyytinen, Jaakko Meriläinen, Tuukka Saarimaa, O. Toivanen and Janne Tukiainen, 2018. When does Regression discontinuity design work? Evidence from random election outcomes. *Quantitative Economics*, 9, 2, July 2018.
- Ari Hyytinen and Sofia Lundberg and O. Toivanen, 2018. Design of public procurement auctions: Evidence from cleaning contracts. *RAND Journal of Economics*, 49, 2, 398-426.
- A. Hyytinen, J. Meriläinen, T. Saarimaa, O. Toivanen and J. Tukiainen, 2018. Public employees as politicians: Evidence from close elections. *American Political Science Review*, 112, 1, 68-81.
- O. Toivanen and Lotta Väänänen, 2016. Education and invention. *The Review of Economics and Statistics*, 98, 2, 382-396.
- Maija Gao, A. Hyytinen and O. Toivanen, 2014. Problems in launching the mobile internet: Evidence from a pricing experiment. *Journal of Economics and Management Strategy*, 23, 3, 483-506.
- T. Takalo, T. Tanayama and O. Toivanen, 2013. Market failures and the additionality effects of public support to private R&D: Theory and empirical implications. *International Journal of Industrial Organization*, 2013, 31, 634-642.
- T. Takalo, T. Tanayama and O. Toivanen, 2013. Estimating the benefits of targeted R&D subsidies. *The Review of Economics and Statistics*, 95, 1, 255-272.
- A. Hyytinen, P. Ilmakunnas and O. Toivanen, 2013. The return-to-entrepreneurship puzzle. *Labour Economics*, 20, 57-67.
- O. Toivanen and L. Väänänen, 2012. Returns to inventors. *The Review of Economics and Statistics*, 94, 4, 1173-1190.
- T. Takalo and O. Toivanen, 2012. Entrepreneurship, financiership, and selection. *Scandinavian Journal of Economics*, 114, 2, 601-628.
- A. Hyytinen and O. Toivanen, 2011. Income inequality and technology diffusion: Evidence from developing countries. *Scandinavian Journal of Economics*, 113, 2, 364-387.
- A. Hyytinen and O. Toivanen, 2005. Do financial constraints hold back innovation and growth? Evidence on the role of public policy. *Research Policy*, 34, 9, 1385-1403.
- O. Toivanen and Michael Waterson, 2005. Market structure and entry: Where's the beef? *RAND Journal of Economics*, 36, 3, 680-699.

Jukka Liikanen, Paul Stoneman, and O. Toivanen, 2004. Intergenerational effects in the diffusion of new technology: The case of mobile phones. *International Journal of Industrial Organization*, 22, 8-9, 1137-1154.

A. Hyttinen and O. Toivanen, 2004. Monitoring and market power in credit markets. *International Journal of Industrial Organization*, 22, 2, 269-288.

A. Hyttinen and O. Toivanen, 2004. Vertical differentiation, asymmetric information and endogenous bank screening. *B.E. Journals in Economics: Topics in Theoretical Economics*, 4, 1, Article 5. <http://www.bepress.com/bejte/topics/vol4/iss1/art5>

A. Hyttinen and O. Toivanen, 2003. Asymmetric information and the market structure in the venture capital industry. *Journal of Financial Services Research*, 23, 3, 241-249.

O. Toivanen, P. Stoneman, and Derek Bosworth, 2002. Innovation and the market value of UK firms, 1989-1995. *Oxford Bulletin of Economics and Statistics*, 64, 1, 39-62.

Robert Cressy and O. Toivanen, 2001. Is there adverse selection in the credit market? *Venture Capital: An International Journal of Entrepreneurial Finance*, 3, 3, 215-238.

P. Stoneman and O. Toivanen, 2001. The impact of revised recommended accounting practices on R&D reporting by UK firms. *International Journal of the Economics of Business*, 8, 1, 123-136.

O. Toivanen and M. Waterson, 2000. Empirical research on discrete choice game-theoretic models of entry: an illustration. *European Economic Review, Papers and Proceedings*, 44, 4-6, 985-992. Reprinted in Joskow, P. and Waterson, M. (eds.) Empirical industrial organization. Volume 1, 2004, 107-14, Elgar Reference Collection. International Library of Critical Writings in Economics, vol. 172. Cheltenham, U.K. and Northampton, Mass. Edgar Elgar.

O. Toivanen and P. Stoneman, 1998. Dynamics of R & D and investment: UK evidence. *Economics Letters*, 58, 119-126.

O. Toivanen, 1997. Economies of scale and scope in the Finnish non-life insurance industry. *Journal of Banking and Finance*, 21, 759-779.

P. Stoneman and O. Toivanen, 1997. Diffusion of multiple technologies: an empirical study. *Economics of Innovation and New Technology*, 5, 1-17.

B. Books

Paul Diederer, P. Stoneman, O. Toivanen and Arjan Wolters, 1999. *Innovation and Research Policies: An International Comparative Analysis*. Edward Elgar Publishing Ltd.

C. Chapters in books

Jan Bonhage and O. Toivanen 2025. [Research, development and innovation aid, IPCEI](#). In *EU State Aid Control: Law and Economic, 2nd Edition*. P. Werner and V. Verhouden (eds.), with permission of Kluwer Law International.

Richard Blundell, Xavier Jaravel and O. Toivanen, 2023. [Inequality and creative destruction](#) (2023). In *Economics of Creative Destruction: New Research on Themes from Aghion and Howitt.*, eds. U. Akcigit and J. van Reenen, Harvard University Press.

O. Toivanen, 2011. Innovation Policy, Entrepreneurship, and Development: A Finnish View. In M. Goedhuys, W. Naudé and E. Szirmai (eds.), *Innovation, Entrepreneurship and Development*, Oxford University Press.

P. Stoneman and O. Toivanen, 2007. Technological diffusion under Uncertainty: A Real Options Model Applied to the International Diffusion of Robot Technology. In C. Antonelli, D. Foray, E. Steinmuller, P. Swann (eds.), *New Frontiers in the Economics of Innovation: Essays in Honour of Paul David*, Edward Elgar.

O. Toivanen, P. Stoneman and P. Diederer, 1999. Uncertainty, macroeconomic volatility and investment in new technology. In C. Driver and P. Temple (eds.), *Investment, Growth and Employment: Perspectives for Policy*, Routledge.

D. Selected other publications

P. Aghion, U. Akcigit, A. Hyttinen and O. Toivanen, 2018. On the returns to invention within firms: evidence from Finland, *American Economic Association Papers and Proceedings*, 108, 208-212.

T. Takalo and O. Toivanen, 2015. Economics of innovation policy. *Nordic Economic Policy Review*, 2, 65-90.

A. Hyytinen and O. Toivanen, 2011. Kartellivahinkojen arviointi. Kilpailuoikeudellinen vuosikirja.

A. Hyytinen and O. Toivanen, 2010. Kilpailunrajoitukset Suomessa 1958-1992. *Kansantaloudellinen aikakauskirja*, 2, 127-140.

O. Toivanen, Reinhilde Veugelers, T. Tanayama, Education, 2009. Research and the Economy. In *Evaluation of the Finnish National Innovation System – Full Report*. Taloustieto/ Ministry of Education and Ministry of Employment and Industry.

O. Toivanen, 2008. National innovation policy in an international world – perspectives from Finland. In M. Squiccarini and T. Loikkanen (eds.), *Going Global: The challenges for knowledge-based economies*, Publications of the Ministry of Employment and the Economy, Innovation 20/2008.

Luke Georghiou, Keith Smith, O. Toivanen and Pekka Ylä-Anttila, 2003. *Evaluation of the Finnish innovation support system*. Ministry of Trade and Industry publications 5/2003.

OTHER ACADEMIC ACTIVITIES

Positions of Trust:

Member, evaluation of Bergen Centre for Competition Law and Economics, 2024.

Member, evaluation of the Department of Economics, Århus University 2024.

Member, Advisory Board of Statistics Finland, 2023-.

Member, Board of Association of Competition Economics, 2023-.

Member, Steering Committee, VATT Dataroom 2023-.

Member, Steering Group, Nordic Microdata Database, 2022-.

Member, Board of Centre for Competition Economics, 2022-.

Member, evaluation of the Department of Economics at NHH Bergen, 2022.

Member, evaluation of the Department of Economics at European University Institute, 2022.

Member, Program Committee, International Industrial Organization Conference, 2020-2021.

Member, Research Council of European University Institute, 2018-2022.

Member, Steering Committee, Nordic Initiative for Corporate Economics, 2017-.

Chair, Scientific Council of VATT Institute for Economic Research, 2016-2024.

Member, Scientific Committee, TILEC conference on Competition, Standardization and Innovation, 2015-2017.

Member, Organization Committee, CEPR conference on Moving to the Innovation Frontier, 2015.

Member, Scientific Committee, ZEW/Mannheim Conference on Economics of Innovation and Patenting 2015-.

Member, European Research Council, panel for consolidator grants 2014, 2016, 2018, 2020.

Member, Organization Committee, CEPR and Bank of Finland conference on Entrepreneurial Finance, Innovation and Growth, 2014.

Member, Expert Group for Programme Monitoring and Evaluation, European Research Council 2014-2015.

Member, Economic Advisory Group on Competition Policy, EU Commission, DG Competition 2014-2020.

Member, Evaluation Group for Economics Research Proposals, Yrjö Jahnsson Foundation, 2010-2015.

Chair, Scientific Committee, EARIE 2010.

Member, Scientific Council of the Government (VATT) Institute for Economic Research, 2010-2012.

Member, Scientific Council of Statistics Finland 2007-2011.

Member, Economic Council of the Finnish Ministry of Finance, 2005-2010.

Member, Scientific Council of the Research Institute of the Finnish Economy (Etla), 2005-2010.

Member, Organization Committee, CEPR Conference on Industrial Economics, 2005-2016.

Member, Scientific Committee of EARIE, 2004-2023, ESEM 2008, 2009, EEA 2001.

Member, Executive Committee of EARIE, 2003-2009.

Member, Local Organization Committee, EARIE 2003, Helsinki.

Memberships in Academic Societies: Finnish Academy of Science and Letters, 2020.

Editorial service:

Associate editor, Journal of European Economic Association, 2022-.
Associate editor, International Journal of Industrial Organization, 2017-.
Editor, Kansantaloudellinen Aikakauskirja (Finnish Economic Journal), 2005-2010.
Associate editor, Journal of Industrial Economics, 2004-2009.
Editor, Finnish Economic Papers, 2005-2006.
Associate editor, Finnish Economic Papers, 2002-2005.

Prizes: The OP Group Research Foundation Prize 2020, Aalto Education Impact Award 2020, Societal Impact Award of HSE Support Foundation, 2020, Jaakko Honko medal 2025

Evaluation of research proposals and refereeing: NSF, EU FP7, ESRC, ERC, Riksbank Foundation, Finnish Cultural Foundation, Sloan Foundation, Yrjö Jahnsson Foundation. Referee for all top journals in economics, and many more

Keynotes and invited presentations at conferences:

Simposio Analisis Economico 2019, Nordic Health Economics Study Group 2017, EARIE 2012, DRUID 2012, EEA 1999.

Other professional service: Examiner and/or pre-examiner on >10 Ph.D. theses (Helsinki U. Tech., Uppsala U., NHH Bergen, HSE, Åbo Akademi U., U. of Helsinki, KU Leuven, U. of Vaasa, Tor Vergata, Stockholm School of Economics).

Ph.D. STUDENTS

Tuomas Markkula, 2025 Aalto U. School of Business (1st placement University of Hamburg)
Amin Mohazab, 2025 Aalto U. School of Business (Nordea)
Jan Jääskeläinen, 2025 Aalto U. School of Business (FCCA)
Jaakko Markkanen, 2025 Aalto U. School of Business(Etna)
Alexis Stevenson, 2022 Hanken School of Economics
Timo Autio, 2022 Aalto U. School of Business (CompassLexecon)
Markku Siikanen, 2019 Aalto (VATT Institute of Economic Research)
Wytse Joosten 2018 KU Leuven (ECOOM, KU Leuven)
Min Zhu 2018 U. of Helsinki (U. of Trento)
Johannes Bersch 2018 KU Leuven (ZEW)
Hendrik Meder 2016 KU Leuven (CRA)
Hanna Virtanen 2016 Aalto (Etna)
Uli Laitenberger 2015 KU Leuven (ZEW)
Mila Köhler 2015 KU Leuven (ZEW)
Nelli Valmari 2014 Aalto (Etna)
Anni Heikkilä 2014 Aalto (Sanoma)
Tanja Saxell 2014 U. of Helsinki (VATT)
Torsten Santavirta 2011 Aalto (U. of Stockholm)
Valtteri Ahti 2011 U. of Helsinki (AIM Capital)
Lotta Väänänen 2010 Helsinki School of Economics (Aalto) (winner of Aalto U. School of Business dissertation award, U. of Mannheim)
Anni-Maria Pulkki-Brannström 2009 Warwick Business School (UCL Centre for International Health and Development)
Khondker Aktaruzzaman 2009 U. of Helsinki (U. of Helsinki and HECER)
Charlotta Grönqvist 2009 Hanken (Bank of Finland)
Janne Tukiainen 2008 U. of Helsinki (VATT and HECER)
Tanja Tanayama 2007 HSE (HECER)
Mikko Mäkinen 2007 HSE (Etna)
Xavier Carpentier 2006 HSE (Nokia)
Ari Hyytinen 2000 HSE (winner of HSE (Aalto U. School of Business) dissertation award, Etna)

NON-ACADEMIC ACTIVITIES

Public sector consulting: Finnish Technology Agency (Tekes), Finnish Economic Policy Council, Ministry of Trade and Industry/Ministry of Employment and Industry, Ministry of Social Affairs and Health, European Commission, DG Industry and Enterprise, DG Economics and Finance, DG Competition, European Investment Bank.

Private sector consulting on competition cases, pricing.

MAJOR RESEARCH GRANTS SINCE 2008

2021	130 000€. Women in science and technology: career impediments and the child penalty” (Kvinnor inom vetenskap och teknik: karriärhinder och kostnader för barn), PI, funding from FORTE grant no. 2021-01552_3, 2021-202, with O. Ejermo, K. Hoisl, A. Hyytinen, M. Mariani, H.C. Kongsted, V. Tartari
2021	900 000€ Enhancing competition and efficiency in public procurement (joint with Ari Hyytinen, Kirsi-Maria Halonen, Janne Tukiainen), Academy of Finland
2020	200 000€ What costs in pharmaceuticals? (joint with Markku Siikanen, Oskari Nokso-Koivisto, Tanja Saxell and Nelli Valmari, VN-TEAS)
2020	150 000€ Competition and regulation in the Nordic pharmaceutical markets, (joint with Oskari Nokso-Koivisto, Mika Kortelainen, Tanja Saxell), the Social Insurance Foundation of Finland (Kela).
2019	513 000€ Competition and provider incentives in health care markets (joint with Kaisa Kotakorpi and Mika Kortelainen), Academy of Finland
2017	200 000€ Pharmaceutical prices, entry into pharmaceutical markets, and regulation (joint with Oskari Nokso-Koivisto, Mika Kortelainen, Tanja Saxell), the Social Insurance Foundation of Finland (Kela).
2012	1.7M€ SIMPATIC “Social Impact Policy Analysis of Technological Innovation Challenges “ (joint with Reinhilde Veugelers, Paul Zagame), EUFP7.
2008	400 000€ “Economic studies using twin data” (joint with Ari Hyytinen and Pekka Ilmakunnas) Academy of Finland. 200 000€ “Economics of public procurement” (joint with Ari Hyytinen and Janne Tukiainen) Eemil Aaltonen Foundation.

Total value of major research grants prior to 2005 circa 1 000 000€. Several smaller grants.