

# Pia Andres

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## CURRENT POSITION

### Researcher

University of Oxford

04/2022 – present

*Supervisor:* Dr Carl Benedikt Frey

*Research Program:* Oxford Martin Program on the Future of Work

Research topics related to the interactions between technological change (such as advances in artificial intelligence) and organizational structure, skills, innovation and trade.

## EDUCATION

### PhD Environmental Economics

London School of Economics and Political Science

09/2018 – 03/2023

*Doctoral thesis:* Essays on Trade, Competitiveness and Innovation in the Transition to Clean Technology

*Supervisors:* Dr Roger Fouquet & Dr Misato Sato

Research visits:

- University of Oslo, Department of Economics 05–06/2022  
*Faculty host:* Professor Bård Harstad
- Columbia University School of International and Public Affairs 09–12/2021  
*Faculty host:* Professor Scott Barrett

### MSc Environmental Economics and Climate Change

Distinction

London School of Economics and Political Science

09/2017 – 08/2018

### MA (Social Sciences) Economics (UG)

First Class Honours

University of Glasgow

09/2013 – 06/2017

## FIELDS OF SPECIALIZATION

**Primary** Environmental Economics, Economics of Innovation and Technological Change

**Secondary** International Economics, Economic Geography & Complexity, Game Theory

## JOURNAL PUBLICATIONS

**Andres, Pia**, Penny Mealy, Nils Handler, and Samuel Fankhauser (2023): “Stranded Nations? Transition Risks and Opportunities Towards a Clean Economy” *Environ. Res. Lett.* <https://doi.org/10.1088/1748-9326/acc347>

*Abstract* The transition away from a fossil-fuel powered economy towards a cleaner production system will create winners and losers in the global trade system. We compile a list of ‘brown’ traded products whose use is highly likely to decline if the world is to mitigate climate change, and explore which countries are most at risk of seeing their productive capabilities ‘stranded’. Using methods from economic geography and complexity, we develop novel measures of transition risk that capture the extent to which countries’ export profiles are locked-in to brown products. We show that countries exporting a high number of brown products, especially technologically sophisticated ones, could find it relatively easy to transition. Conversely, countries with exports highly concentrated in a few, low-complexity brown products have much fewer nearby diversification opportunities. Our results suggest that export complexity and diversity play a key role in determining transition risk. Path-breaking diversification strategies are needed to prevent nations from becoming stranded.

## WORKING PAPERS

**Andres, Pia** (2023): “Industrial Policy and Global Public Goods Provision – Rethinking the Environmental Trade Agreement” *Grantham Research Institute on Climate Change and the Environment Working Paper 388*

*Abstract* Countries around the world increase the downstream cost of low carbon technologies using anti-dumping duties and local content requirements, while simultaneously blaming inadequate efforts to address climate change on the economic cost of doing so. This paper presents a 2-country, 2-period strategic model of trade in a clean technology in the presence of differential country-level production costs and imperfect competition. If the difference in production cost is large enough and learning-by-doing allows the laggard country to catch up, then in the absence of production subsidies remaining in autarky during Stage 1 of the game can be welfare-improving for both countries. This result is strengthened when both countries use consumer subsidies. When countries choose their policy mixes, the Nash Equilibrium involves both trade and production subsidies on the part of the high cost country. The analysis suggests that an environmental trade agreement is most likely to be beneficial if production subsidies for clean technology are explicitly permitted.

**Andres, Pia** (2022): “Was the Trade War Justified? Solar PV Innovation in Europe and the Impact of the ‘China Shock’” *Grantham Research Institute on Climate Change and the Environment Working Paper 379*

*Abstract* Low cost solar energy is key to enabling the transition away from fossil fuels. Despite this, the European Union followed the United States’ example in imposing anti-dumping tariffs on solar panel imports from China in 2012, arguing that Chinese panels were unfairly subsidized and harmed its domestic industry. This paper examines the effects of Chinese import competition on firm-level innovation in solar photovoltaic technology by European firms using a sample of 4,632 firms in 14 EU countries over the period 1999-2018. I show that firms which were exposed to higher import competition innovated more. Further, I find that during the years following the trade war, firms with a higher existing stock of innovation became less innovative. The results imply that competition from China constituted a positive push for more innovation among European solar innovators, calling into question the rationale behind the trade war.

**Andres, Pia**, Eugenie Dugoua, and Marion Dumas (2022): “Directed Technological Change and General Purpose Technologies: Can AI Accelerate Clean Energy Innovation?” *Grantham Research Institute on Climate Change and the Environment Working Paper 378*

*Abstract* Transitioning away from dirty and towards clean technologies is critical to reduce carbon emissions, but the race between clean and dirty technologies is taking place against the backdrop of improvements in general-purpose technologies (GPT) such as information and communication technologies (ICT) and artificial intelligence (AI). We show how, in theory, a GPT can affect the direction of technological change and, in particular, the competition between clean and dirty technologies. Second, we use patent data to show that clean technologies absorb more spillovers from AI and ICT than dirty technologies and that energy patenting firms with higher AI knowledge stocks are more likely to absorb AI spillovers for their energy inventions. We conclude that ICT and AI have the potential to accelerate clean energy innovation.

## SELECTED WORK IN PROGRESS

**Remote Work & Compensation Practices** (with Carl Benedikt Frey & Giorgio Presidente)

**On Data: a New Approach to Measurement** (with Carl Benedikt Frey & Giorgio Presidente)

## POLICY PUBLICATIONS

Serin, Esin, Anna Valero, Ralf Martin, Arjun Shah, **Pia Andres**, and Penny Mealy (2021): *Seizing sustainable growth opportunities from carbon capture, usage and storage in the UK*. London: Centre for Climate Change Economics and Policy, Grantham Research Institute on Climate Change and the Environment and Centre for Economic Performance, London School of Economics and Political Science.

**Andres, Pia**, and Penny Mealy (2021): *Navigating the green transition: insights for the G7*. London: Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science.

Unsworth, Sam, **Pia Andres**, Giorgia Cecchinato, Penny Mealy, Charlotte Taylor, and Anna Valero (2020): "Jobs for a strong and sustainable recovery from Covid-19." *Centre for Economic Performance Covid-19 Analysis CEPCOVID-19-010*.

### RESEARCH IMPACT WORK

**Green Transition Navigator** ([www.green-transition-navigator.org](http://www.green-transition-navigator.org))  
London School of Economics and Political Science 07/2020 – present  
Interactive web tool visualizing measures of green competitiveness (with Penny Mealy)

### GRANTS, AWARDS & FELLOWSHIPS

**PhD KEI grant (£5,000)**, LSE Knowledge Exchange and Impact 2022-23  
**Fulbright-Schuman Visiting Student Researcher Grant (€10,000) and**  
**AT&T Award (\$5,000)**, Fulbright Commission in Belgium 2021-22  
**Lean Accelerator Venture Grant (£2,000)**, LSE Innovation 2020-21  
**Grantham Research Institute PhD Scholarship**, London School of Economics 2018-22  
**Adam Smith Scholar Award of Excellence**, University of Glasgow 2016-17  
**Macfie Bequest (Economics Second Prize)**, University of Glasgow 2013-14, 2014-15

### RESEARCH EXPERIENCE

**Research Assistant**  
Oxford School of Geography and the Environment 02–03/2022, 07–08/2021  
*Supervisor:* Professor Sam Fankhauser

**Research Assistant**  
Grantham Research Institute on Climate Change and the Environment 10/2017 – 03/2022  
*Supervisor:* Dr Misato Sato

**Research Assistant**  
LSE STICERD 07–08/2021  
*Supervisor:* Dr Eugenie Dugoua

### TEACHING EXPERIENCE

**Tutor**  
Oxford Study Abroad Programme 01–03/2023  
Environmental Resource Governance (included syllabus design)

**Graduate Teaching Assistant**  
LSE Department of Economics 09/2019 – 06/2020  
EC102 Economics B (introductory course in microeconomics and macroeconomics)

**Graduate Teaching Assistant**  
LSE Department of Geography & Environment 09–12/2019  
GY313 Firms and Economic Geography: Location, Technology and Innovation

### OTHER PROFESSIONAL EXPERIENCE

**Analyst**  
Vivid Economics 10/2020 – 01/2021, 07–09/2019

<b>Postgraduate Intern</b> Bank of England	06–08/2017
<b>Knowledge Exchange Events Intern</b> University of Glasgow	09/2016 – 03/2017
<b>Government Economic Service Intern</b> Office for National Statistics	06–09/2016

### SKILLS & QUALIFICATIONS

**IT Skills** LaTeX, STATA, Python, R, QGIS, Microsoft Office

**Languages** German (Native), English (Cambridge ESOL Certificate in Advanced English, grade A), French (Diplôme d'Etudes en Langue Française, CEFR Level B2)

### INVITED TALKS

Innovation for Cool Earth Forum: Policy Innovation (Panellist); Department of Economics, Oslo Metropolitan University (Research Seminar)	2022
LSE Economics Symposium 2021: Towards Net Zero (Chair); COP26 Side Event, Economics and Policy for Climate Compatible Growth (Panellist); British Institute of Energy Economists: Energy for a Net Zero Society (Panellist); UK Network for Environmental Economists (Spring Webinar)	2021

### SELECTED CONFERENCES & WORKSHOPS

Institut d'Economia de Barcelona & University of Barcelona (XI International Academic Symposium: Green investments for the energy transition); EAERE-ETH European Winter School on Climate Policies, Innovation, and International Competitiveness	2023
Centre for Advanced Spatial Analysis, University College London (Workshop); Institute for New Economic Thinking at the Oxford Martin School (Research Seminar); European Association for Environmental & Resource Economists (Annual Conference); Columbia University Interdisciplinary PhD Workshop in Sustainable Development	2022
European Association for Environmental & Resource Economists (Annual Conference); LSE-Imperial Workshop in Environmental Economics	2021
Columbia University Interdisciplinary PhD Workshop in Sustainable Development	2020

### ACADEMIC SERVICE & MEMBERSHIPS

#### Referee

Research Policy

#### Associate Fellow

UK Higher Education Academy (HEA) 03/2021 – present  
LSE Principles of Teaching in Higher Education – Associate Fellowship Programme completed during the academic year 2019-20. Fellowship reference: PR210549

#### Member

European Association of Environmental and Resource Economists 09/2018 – present

#### Organizer

Applied economics work-in-progress seminar 09/2019 – 06/2021  
PhD-only work-in-progress seminar at the LSE's Department for Geography & Environment.