Shock Therapy for Clean Innovation*

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December 2025

Abstract

We study how a negative profitability shock in the fossil energy supply chain affects firms' direction of innovation. We develop a stylized model to show that adjustment costs in R&D create incentives for exposed firms to reallocate innovation toward clean technologies. Next, we propose a novel approach to measure firms' exposure to the 2014 oil price collapse, and find that more exposed firms significantly increased clean R&D relative to less exposed peers. The results suggest that firms in the fossil energy supply chain possess transferable capabilities for clean innovation, and that declining fossil profitability—e.g., via carbon pricing—can accelerate the clean transition along the fossil energy supply chain.

JEL codes: D22, F14, F18, O31, Q55, Q56.

Keywords: R&D, clean innovation, supply chains, green transition.

*We thank Lassi Ahlvik, Johannes Boehm, Eugenie Dugoua, Rikard Forslid, Bård Harstad, Linnea Lorentzen, Christoph Meinerding, Natalie Rickard, Sjak Smulders, and Andre Trindade, along with seminar audiences at University of Oxford, University of Cambridge, Geneva Graduate Institute, University of Surrey, NHH Norwegian School of Economics, and OsloMET and participants at the CESifo workshop on Trade, Market Failures and Development, CITP Academic Conference, Tilburg Growth, International Macro, Finance and Trade Conference, CESifo Global Economy Conference, CITP/Sussex Workshop on IP Rights, EAERE Leuven, Imperial/LSE Workshop in Environmental Economics, NAERE Bergen, 14th Toulouse Conference on the Economics of Energy and Climate, Uppsala Transport Economics & the Environment Workshop, Technology and International Trade, CEP Annual Conference, CESifo Venice Summer Institute, 15th Nordic Conference on Register Data and Economic Modelling, Tax Research Conference 2024, CCA Workshop on International Economics, Villars Workshop on International Trade, QMUL/Bristol/KCL/Bank of England Workshop on Firm Dynamics, Market Structures and Productivity in the Macroeconomy, and ERWIT 2025 for valuable comments and discussion. This project has received funding from the Norwegian Ministry of Trade, Industry and Fisheries (INNOPROD) and from the Norwegian Research Council through Norwegian Fiscal Studies. Data from Statistics Norway have been crucial for this project.

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