

# MARTIN STUERMER

## CONTACT

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## CURRENT POSITIONS

- 04/2021-present **International Monetary Fund**, Research Department, Commodities Unit.  
Dec 2023 – May 2024: One-off country assignment, Guinea.  
Nov 2022 – Oct 2022: Co-Lead, World Economic Outlook chapter on  
“Fragmentation and Commodity Markets.”  
Since May 18, 2021: Economist (Term Staff – Mid-Career Program).  
April 19 – May 17, 2021: Senior Economist (Contractual).
- 01/2022-present **University of Maryland**, Department of Economics, Adjunct Lecturer.

## PREVIOUS WORK EXPERIENCE

- 04/2018-04/2021 **Federal Reserve Bank of Dallas**, Research Department, Senior Research Economist.
- 07/2014-03/2018 **Federal Reserve Bank of Dallas**, Research Department, Research Economist.
- 05/2019-06/2019 **The World Bank**, Development Prospects Group, Short Term Consultant.
- 05/2018-06/2018 **The World Bank**, Development Prospects Group, Short Term Consultant.
- 08/2013-07/2014 **University of Bonn**, Institute for International Economics, Post-Doctoral Researcher.
- 10/2008-07/2013 **University of Bonn**, Institute for International Economics, Research Associate.
- 03/2010-04/2010 **Organization for Economic Cooperation and Development**, Steel Committee, Consultant.
- 08/2008-06/2010 **German Development Institute**, Consultant on Mining Taxation.
- 02/2008-07/2008 **Federal Institute for Geosciences and Natural Resources**, Division for Mineral Economics, Research Associate.
- 11/2007-02/2008 **Wuppertal Institute for Climate, Environment and Energy**, Contractual Employee.
- 09/2005-12/2005 **Columbia University**, Earth Institute, Global Roundtable on Climate Change, Research Assistant to Professor Jeffrey Sachs.

## EDUCATION

- 10/2008-07/2013 **University of Bonn**, Ph.D. (*Dr.rer.pol.*) Economics.  
Advisors: Juergen von Hagen, Martin Hellwig.
- 09/2003-07/2007 **Institute d’Études Politiques de Paris & Free University Berlin**,  
German-French Dual Degree.

M.A. Economics (*Master de recherche, gouvernance économique, Diplôme de Sciences Po*).

Diploma, Political Science (*Diplom Politologe*).

03/2005-12/2005 **Columbia University**, Visiting Scholar and Non-Degree Student.

## **PUBLICATIONS IN REFEERED JOURNALS**

[“Energy Transition Metals: Bottleneck for Net-Zero Emissions?”](#) (2024) (with Lukas Boer and Andrea Pescatori), *Journal of the European Economic Association*, 22(1): 200-229.

[“Mining in Space Could Spur Sustainable Growth.”](#) (2023) (with Maxwell Fleming, Ian Lange, and Sayeh Shojaenia), *Proceedings of the National Academy of Sciences*, 120(43):1-8.

[“Sectoral Shocks and the Role of Market Integration: The Case of Natural Gas.”](#) (2023) (with Silvia Albrizio, John Bluedorn, Christoffer Koch and Andrea Pescatori), *American Economic Review Papers and Proceedings*, 113: 43-46.

[“Non-Renewable Resource Extraction over the Long Term: Empirical Evidence from Global Copper Production”](#) (2022) *Mineral Economics (special issue in honor of Friedrich-Wilhelm Wellmer)*, 35: 617-625.

[“Dry Bulk Freight Rates and Their Drivers, 1850-2020”](#) (2022) (with David Jacks), *Australian Economic History Review (special issue in honor of Jeffrey Williamson)*, 61(2): 204-227.

[“What Drives Commodity Price Booms and Busts?”](#) (2020) (with David Jacks). *Energy Economics*, Vol. 85. 2020, 104035.

[“150 Years of Boom and Bust: What Drives Mineral Commodity Prices.”](#) (2018) *Macroeconomic Dynamics*, Vol. 22, pp. 702-717.

[“Industrialization and the Demand for Mineral Commodities.”](#) (2017) *Journal of International Money and Finance*, Vol. 22, pp. 16-27.

## **WORKING PAPERS**

[“Geeconomic Fragmentation and Commodity Markets.”](#) (with Jorge Alvarez, Mehdi Benatiya Andaloussi, Chiara Maggi, Alexandre Sollaci and Petia Topalova) IMF-Working Paper, No. 2023/201. Submitted to *Journal of International Economics*.

[“Not All Energy Transitions Are Alike: Disentangling the Effects of Demand and Supply-Side Policies on Future Oil Prices.”](#) (with Lukas Boer and Andrea Pescatori) IMF-Working Paper, No. 2023/160. Submitted to *Journal of Applied Econometrics*.

[“Economic Consequences of Large Extraction Declines: Lessons for the Green Transition.”](#) (with Rudolf Bems, Lukas Boehnert, and Andrea Pescatori) IMF-Working Paper, No. 2023/97.

[“Natural Gas in Europe: The Potential Impact of Disruptions to Supply.”](#) (with Gabriel Di Bella, Mark J. Flanagan, Karim Forda, Svitlana Maslova, Alex Pienkowski, Frederik G. Toscani) IMF-Working Paper, No. 2022/145. Resubmitted to *Energy Economics*.

[“Market Size and Supply Disruptions: Sharing the Pain of a Potential Russian Gas Shut-off to the European Union.”](#) (joint work with Silvia Albrizio, John C. Bluedorn, Rachel Brasier, Christoffer Koch and Andrea Pescatori, all International Monetary Fund) IMF-Working Paper, No. 2022/143. Resubmitted to *The Energy Journal*

[“A Dynamic Analysis of Collusive Action: The Case of the World Copper Market, 1882-2016.”](#) (with Gordon Rausser) MPRA Paper, No. 104708, 2020.

[“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.”](#) (with Gregor Schwerhoff) Dallas Fed Working Paper, No. 1506, 2015 (Updated in 2020).

## INTERNATIONAL MONETARY FUND PUBLICATIONS

["A Critical Matter. Fragmentation of Critical Mineral Markets Would Slow the Shift to Clean Energy"](#) (with Christopher Evans and Marika Santoro) *Finance and Development*, December 3, 2023.

[“Goeconomic Fragmentation Threatens Food Security and Clean Energy Transition.”](#) (with Jorge Alvarez and Mehdi Benatiya Andaloussi) *IMFBlog*, October 3, 2023.

[“IMF World Economic Outlook. Chapter 3: Fragmentation and Commodity Markets: Vulnerabilities and Risks.”](#) (with Jorge Alvarez, Mehdi Benatiya Andaloussi, Christopher Evans, Chiara Maggi, Marika Santoro, Alexandre Sollaci and Petia Topalova) International Monetary Fund, Washington DC, 2023.

[“How Natural Gas Market Integration Can Help Increase Energy Security.”](#) (with Rachel Brasier and Andrea Pescatori) *IMFBlog*, May 23, 2023.

[“IMF World Economic Outlook: Commodity Special Feature: Market Developments and The Macroeconomic Impact of Declines in Fossil Fuel Extraction.”](#) (with Rudolf Bems, Lukas Boehnert and Andrea Pescatori) IMF World Economic Outlook, April 2023, pp. 30-35.

[“G20 Background Note on Macroeconomic Impact of Energy and Food Insecurity.”](#) (with Shekhar Aiyar, Lone Christiansen, Chanpheng Fizzarotti, Carlos van Hombeeck, Kyu Ho Lee, Adil Mohommad, Cedric Okou, Augustus Panton, Irvin Prifti, Hugo Rojas-Romagosa, and Martin Stuermer), International Monetary Fund, Washington DC, 2023.

[“From Abundance to Thirst.”](#) (with Andrea Pescatori) *Finance and Development*, December 2022, pp. 24-27.

["IMF World Economic Outlook: Commodity Special Feature: Market Developments and Food Price Inflation Drivers,"](#) (with Christian Bogmans, Andrea Pescatori, Ervin Prifti) *IMF World Economic Outlook*, October 2022, pp. 37-47.

"The Green Energy Transition and its Impact on Metal Mining." (with Rudolfs Bems) Box in: [IMF External Sector Report 2022: Pandemic, War and Global Imbalances](#), International Monetary Fund, Washington DC.

[“How a Russian Natural Gas Cutoff Could Weigh on Europe’s Economies.”](#) (with Mark Flanagan, Alfred Kammer and Andrea Pescatori) *IMFBlog*, July 19, 2022. Coverage by: [Financial Times](#), [Reuters](#), [Bloomberg](#), [The Guardian](#), [Die Welt](#), [Wall Street Journal](#)

[“United States. Staff Report for the 2022 Article IV Consultations.”](#) (with Nigel Chalk, Laila Azoor, Katharina Bergant, Moya Chin, Andrew Hodge, Li Lin, Rui Mano, Andrea Medici, Anke Weber, Mico Mrkaic and Elizabeth van HerveIn) International Monetary Fund, Washington DC.

["IMF World Economic Outlook: Commodity Special Feature: Market Developments and the Pace of Fossil Fuel Divestment,"](#) (with Christian Bogmans, Andrea Pescatori, Ervin Prifti, Nico Valckx) *IMF World Economic Outlook*, April 2022, pp. 31-36.

["IMF World Economic Outlook: Commodity Special Feature: Chapter 1: Adverse Scenario Box,"](#) (with several contributors) *IMF World Economic Outlook*, April 2022, pp. 25-26.

["Metals Demand from Energy Transition May Top Current Global Supply."](#) (with Nico Valckx, Dulani Seneviratne and Ananthkrishnan Prasad) *IMFBlog*, December 12, 2021.

["Soaring Metal Prices May Delay Energy Transition."](#) (with Andrea Pescatori and Nico Valckx) *IMFBlog*, November 10, 2021.

["Surging Energy Prices May Not Ease Until Next Year."](#) (with Andrea Pescatori and Nico Valckx) *IMFBlog*, October 21, 2021.

["IMF World Economic Outlook: Commodity Market Developments and Forecasts: Clean Energy Transition and Metals: Blessing or Bottleneck?"](#) (with Lucas Boer, Andrea Pescatori and Nico Valckx) *IMF World Economic Outlook, October 12, 2021, pp. 31-36.*

["Four Factors Behind the Metals Price Rally."](#) (with Nico Valckx) *IMFBlog*, June 8, 2021.

## **OTHER POLICY PUBLICATIONS**

["Why we need international data sharing on critical minerals."](#) (with Lukas Boer, Andrea Pescatori and Matthew Wittenstein), World Economic Forum Blog, December 4, 2023.

["Reducing fossil fuel extraction may imply persistent negative effects for fossil fuel-producing economies."](#) (with Rudolfs Bems, Lukas Boehnert and Andrea Pescatori) *VoxEU*, July 11, 2023.

["The Potential Impact of Gas Supply Disruptions in Europe: An Update."](#) (with G. Di Bella, M. Flanagan, K. Foda, A. Pescatori, A. Pienkowski, and F. Toscani ) *VoxEU*, Oct 3, 2022.

["Natural Gas in Europe: The Potential of Disruptions to Supply."](#) (with G. Di Bella, M. Flanagan, K. Foda, A. Pescatori, A. Pienkowski, and F. Toscani ) *SUERF Policy Brief, No. 412, 2022.*

["Metals may Become the New Oil in Zero Emissions Scenario."](#) (with L. Boer, A. Pescatori and N. Valckx) *VoxEU*, November 5, 2021.

["Central Bankers Need to Take Note of Transition to Clean Energy."](#) (with S. Howard) *Dallas Fed Economics*, 2021.

["A Tale of Boom and Bust. What Drives Dry Bulk Freight Rates?"](#) (with D. Jacks) *Dallas Fed Economics*, 2021.

["Falling Oil Prices Drag Down U.S. Business Investment."](#) (with G. Golding and J. Thompson) *Dallas Fed Economics*, 2020.

["Solving a Puzzle: More Nonrenewable Resources Without Higher Prices."](#) (with S. Howard) *Dallas Fed Economics*, 2019.

["OPEC Extends Cuts, Opening Door for U.S. to Gain Further Market Share."](#) (with G. Strickler) *Quarterly Energy Update*, 2017.

["Demand Shocks Fuel Commodity Price Booms and Busts."](#) *Dallas Fed Economic Letter*, Vol. 12, No. 14, 2017.

["OPEC Reloaded: More Appearance than Substance?"](#) (with R. Brasier) *Quarterly Energy Update*, No. 4, 2016.

["Oil Roller Coaster: Prices Rise on Production Outages, Fall with Brexit."](#) (with N. Dhaliwal) *Quarterly Energy Update*, No. 2, 2016.

["OPEC Likely to Keep Pumping Even as Some Members Confront Budget Woes."](#) (with N. Dhaliwal) *Southwest Economy*, No. 4, 2015.

["Oil Markets Stabilizing, but OPEC Supply Raises Concerns."](#) *Quarterly Energy Update*, No. 2, 2015.

["OPEC Tips Crude Oil Markets Over the Cliff."](#) (with N. Dhaliwal) *Quarterly Energy Update*, No. 4, 2015.

[“Policy Measures of BRIC Countries to Secure the Supply of Mineral Resources.”](#) (in German) (with Juergen von Hagen) *DERA Rohstoffinformationen*, No. 12, German Federal Mineral Resource Agency, 2012.

[“The Impact of BRIC Countries on Mineral Commodity Markets.”](#) (in German) (with J. von Hagen) *DERA Rohstoffinformationen*, No. 11, German Federal Mineral Resource Agency, 2012.

“Export Barriers in Steelmaking Raw Material Markets.” Background paper, OECD Steel Committee Meeting, Paris, May 6th-7th, 2010.

[“Let the Good Times Roll? Raising Tax Revenues from the Extractive Sector in Sub-Saharan Africa During the Commodity Price Boom.”](#) *Discussion Paper*, No. 7, German Development Institute, 2010.

[“Increasing Resource Efficiency. Potentials, Policies and Industry Dialogue.”](#) (in German) (with Thomas Lemken, Rainer Lucas, Jose Acosta, Raimund Bleischwitz, Claudia Kaiser, Melanie Krause, Michael Ritthoff, Michael Scharp, Henning Wilts) German Environmental Agency, 2009.

[“Efficient Use of Copper. Untapped Potentials, New Perspectives.”](#) (in German) (with Rainer Lucas, Raimund Bleischwitz, Melanie Krause) Wuppertal Institute for Climate, Environment and Energy, 2008.

[“The International Raw Materials Boom. A Challenge for Multilateral Trade Policy.”](#) *International Politics and Society*, No. 2, 2008, pp. 126-139.

[“Financing for Development Series: Increasing Government Revenues from the Extractive Sector in Sub-Saharan Africa.”](#) Briefing Paper, No. 9, German Development Institute, 2008.

[“Government Revenues from the Extractive Sector in Sub-Saharan Africa. A Potential for Funding the United Nations Millennium Development Goals?”](#) (with Peter Buchholz) German Federal Institute for Geoscience and Natural Resources, 2008.

## **BOOK CHAPTERS**

“Metals for Low Carbon Technology Products.” (with Rachel Brasier, Andrea Pescatori) Box in: [“Data for a Greener World: A Guide for Practitioners and Policymakers,”](#) edited by Serkan Arslanalp, Kristina Kostial, and Gabriel Quirós-Romero. IMF Book, Washington, DC: International Monetary Fund, 2023.

[“An Overview of Geological Resources in Sub-Saharan Africa: Potential and Opportunities for Tax Revenue from the Extractive Sector.”](#) (with P. Buchholz) in: Runge, J. and Shikwati, J. (Eds.): *Geological Resources and Good Governance in Sub-Saharan Africa: Holistic Approaches to Transparency and Sustainable Development in the Extractive Sector*. Routledge Chapman & Hall, London, 2011.

[“Grameen Shakti: An Alternative Approach to Financing Energy in Rural Bangladesh.”](#) (with N. Kebir, D. Philipp, J. Scheffran) in: Finger, M., von Weizsaecker, E.U., and Young, O. (Eds.): *Limits to Privatization. When a Solution Becomes a Problem: A Report to the Club of Rome*. Earthscan, London, 2005.

## **BOOK REVIEWS**

[“The World for Sale: Money, Power, and the Traders Who Barter the Earth's Resources \(by Javier Blas & Jack Farchy\)”](#) (2023) *The Energy Journal*, Vol. 44, No. 6, 305-6.

## **ORGANIZATION OF CONFERENCES AND SESSIONS, ROUNDTABLE PARTICIPATIONS**

Academic Committee Member: “Central Bank Research Association (CEBRA) Workshop for Commodities and Macroeconomics.” Washington DC, November 2023.

Co-Organizer of IMF Flagship-Seminar on “Climate Finance and Energy Security?” (with Andrea Pescatori), Seminar at the 2023 IMF-World Bank Spring Meetings, April 11, 2023.

Working Group Member: “Securing Minerals for the Energy Transition.” World Economic Forum Initiative, since March 2023.

Academic Committee Member: “Central Bank Research Association (CEBRA) Workshop for Commodities and Macroeconomics.” Washington DC, Oct 2021.

Session Organizer: “Growth and Natural Resources,” Annual Congress of the European Economic Association, Rotterdam, Aug 2020.

Academic Committee Member: “Central Bank Research Association (CEBRA) Workshop for Commodities and Macroeconomics.” Rome, Sep 2019.

Conference Co-Organizer: “Central Bank Research Association (CEBRA) Workshop for Commodities and Macroeconomics,” Federal Reserve Banks of Dallas and Kansas City, Sep 2018.

Conference Co-Organizer: “Energy and the Economy: Charting the Course Ahead,” Federal Reserve Banks of Dallas and Kansas City, Sep 2017.

Workshop Co-Organizer “Dallas Fed- Norges Bank Workshop on Applied Econometrics in Commodities and Housing Markets Dallas,” Texas, Oct 2017.

Conference Co-Organizer: “Global Oil Supply and Demand: Prospects for Greater Balance,” Federal Reserve Banks of Dallas and Kansas City, Sep 2017.

Conference Co-Organizer: “Federal Reserve System Energy Meeting,” Oklahoma City, Sep 2017.

Conference Co-Organizer: “Oil and the Economy: Adapting to a New Reality,” Federal Reserve Banks of Dallas and Kansas City, Nov 2016.

Conference Co-Organizer: “Federal Reserve System Energy Meeting,” Houston, Nov 2016.

Conference Co-Organizer: “Commodity Super Cycles Workshop,” Federal Reserve Bank of Dallas and Bank of Canada, 2015.

Session Organizer: “Explaining Commodity Price Fluctuations,” American Economic Association Annual Meeting, Philadelphia, 2014.

## **CONFERENCE PRESENTATIONS (ACADEMIC)**

“Goeconomic Fragmentation and Commodity Markets.” Annual Meeting of the American Economic Association, San Antonio, TX, January 5, 2024.

“Not All Energy Transitions are Alike: Disentangling the Effects of Demand and Supply-Side Climate Policies on Future Oil Prices.” (Poster Session) Annual Meeting of the American Economic Association, San Antonio, TX, January 5, 2024.

“Economic Consequences of Large Extraction Declines: Lessons for the Green Transition.” Summer Meeting of the Central Bank Research Association, Columbia University, New York City, NY, July 7, 2023.

“Economic Consequences of Large Extraction Declines: Lessons for the Green Transition.” North American Summer Meeting of the Econometrics Society, University of California, Los Angeles, CA, June 24, 2023.

“Energy Transition Metals.” 10<sup>th</sup> Annual Workshop on the Global Economy: Commodity Prices and Inflation, Center for Applied Macroeconomic Analysis, Australian National University, Washington DC, May 16, 2023.

“Resource Curse Reversed? The Potential Macroeconomic Impact of Climate Policies on Fossil Fuel Producing Countries.” Annual Meeting of the Eastern Economics Association, session organized by the Association of Environmental and Resource Economists, New York, NY, February 26, 2023.

“Energy Transition Metals: Bottleneck for Net Zero Emissions?” Annual Meeting of the Eastern Economics Association, Session organized by the Association of Environmental and Resource Economists, New York, NY, February 26, 2023.

“Market Size and Supply Disruptions: Sharing the Pain from a Potential Russian Gas Shut-off to the EU.” American Economic Association Annual Meeting, New Orleans, LO, January 7, 2023.

“Market Size and Supply Disruptions: Sharing the Pain from a Potential Russian Gas Shut-off to the EU.” Workshop on Energy and Climate: Macroeconomic Implications, BI Norwegian Business School, Oslo, NO, August 18, 2022.

“A Dynamic Analysis of Collusive Action: The Case of the World Copper Market, 1882-2016.” Commodity and Energy Markets Association Annual Meeting 2022, Chicago, IL, June 21, 2022 (virtual).

“Energy Transition Metals.” Annual Meeting of the U.S. Association for Energy Economics, November 1, 2021 (virtual).

“A Dynamic Analysis of Collusive Action: The Case of the World Copper Market, 1882-2016.” International Symposium of the J.P Morgan Center for Commodities Research, CU Denver, August 17, 2021 (virtual).

“A Dynamic Analysis of Collusive Action: The Case of the World Copper Market, 1882-2016.” International Industrial Organization Conference, April 30, 2021 (virtual).

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” Annual Congress of the European Economics Association, Rotterdam, NL, August 25, 2020 (virtual).

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” Federal Reserve System Energy Meeting, Denver, CO, October 17, 2019.

“Dynamic Analysis of Collusive Action: The Case of the World Copper Market, 1820-2014.” Annual Congress of the European Economics Association, Manchester, UK, August 28, 2019.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” European Meeting of the Econometric Society, Manchester, UK, August 26, 2019.

“Dynamic Analysis of Collusive Action: The Case of the World Copper Market.” Festschrift in Honor of Gordon Rausser, UC Berkeley, CA, October 29, 2019.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” American Economic Association Annual Meeting, Philadelphia, PA, January 5, 2018 (poster session).

“Industrialization and the Demand for Mineral Commodities.” American Economic Association Annual Meeting, Philadelphia, PA, January 5, 2018 (poster session).

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” Federal Reserve System Research Scrum, San Francisco, CA, June 11, 2018.

“What Drives Commodity Price Booms and Busts?” International Commodities Symposium: “New Directions in Commodities Research,” J.P. Morgan Center for Commodities, University of Colorado Denver, Denver, CO, August 10, 2017.

“What Drives Commodity Price Booms and Busts.” Federal Reserve System Macroeconomics Committee Meeting, San Antonio, TX, February 24, 2017.

“What Drives Commodity Price Booms and Busts?” American Economic Association Annual Meeting, Chicago, IL, January 6, 2017

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” Annual Meeting of the US Association for Energy Economics, Houston, TX, November 12, 2017.

“Collusion in the World Copper Market: A Long-Run Perspective.” Dallas Fed-Norges Bank Workshop on Applied Econometrics in Commodities and Housing Markets Dallas, Texas, October 18, 2017.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” National Bureau of Economic Research (NBER) Summer Institute, Growth Meeting, Boston, MA, July 15, 2016.

“Collusion in the World Copper Market: A Long-Run Perspective.” Econometrics Society North American Summer Meeting, Philadelphia, PA, June 18, 2016.

“Industrialization and the Demand for Mineral Commodities?” Workshop on “Commodity Cycles and Their Implications,” organized by the Bank of Canada and International Energy Forum, Bank of Canada, Ottawa, Canada, April 25, 2016.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” American Association of Environmental and Resource Economists, Summer Meeting, Breckenridge, CO, June 11, 2016.

“What Drives Commodity Prices in the Long Run?” Workshop on “Commodity Super Cycles,” organized by the Bank of Canada and the Federal Reserve Bank of Dallas, Bank of Canada, Ottawa, Canada, April 27, 2015.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” Federal Reserve System Macroeconomics Committee Meeting, Cincinnati, OH, October 4, 2016.

“Collusion in Commodity Markets: A Long-Run Perspective.” American Economic Association, Annual Meeting, Boston, MA, January 2, 2015.

“Collusion in Commodity Markets: A Long-Run Perspective.” U.S. Association for Environmental and Resource Economics Summer Conference, San Diego, CA, June 5, 2015.

“Technological Change in Resource Extraction and Endogenous Growth.” Society for Nonlinear Dynamics and Econometrics, Annual Symposium, Oslo, Norway, March 19, 2015.

“What Drives Commodity Prices in the Long Run?” Workshop on “Empirical Macroeconomics,” Norges Bank & Centre for Applied Macro- and Petroleum Economics at BI Norwegian School of Business, Oslo, Norway, March 18.

“Collusion in Commodity Markets: A Long-Run Perspective.” Canadian Economic Association, Annual Meeting, Toronto, Canada, May 30, 2015.

“Technological Change in Resource Extraction and Endogenous Growth.” U.S. Association for Energy Economics North American Conference, Pittsburgh, PA, October 28, 2015.

“Technological Change in Resource Extraction and Endogenous Growth.” Southern Economic Association Annual Meeting, New Orleans, LA, November 23, 2015.

“Technological Change in Resource Extraction and Endogenous Growth.” American Economic Association Annual Meeting, Philadelphia, PA, January 3, 2014 (poster session).

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” American Economic Association Annual Meeting, Philadelphia, PA, January 4, 2014.



“Industrialization and the Demand for Mineral Commodities.” World Congress of Environmental and Resource Economists, Istanbul, Turkey, July 1, 2014.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Spanish Economic Association Annual Meeting, Santander, Spain, December 14, 2013.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” European Economic Association, Annual Meeting, Gothenburg, Sweden, August 29, 2013.

“Technological Change in Resource Extraction and Endogenous Growth.” European Association of Environmental and Resource, Annual Meeting, Toulouse, France, June 28, 2013.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Verein für Socialpolitik, Annual Meeting, Goettingen, Germany, September 11, 2012.

“Non-Renewable but Inexhaustible: Resources in an Endogenous Growth Model.” European Economic Association, Annual Meeting, Malaga, Spain, August 29, 2012.

“Industrialisation and the Use of Mineral Resources.” University of Muenster, FRESH Meeting, March 15, 2012.

“Non-Renewable but Inexhaustible: Resources in an Endogenous Growth Model.” Centre for European Economic Research, Conference on “The Green Growth Challenge”, Mannheim, Germany, March 10, 2012.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Economic History Association, Annual Meeting, Boston, MA, September 9<sup>th</sup>, 2011.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” European Historical Economics Society Conference, Annual Meeting, Dublin, Ireland, September 2, 2011.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Summer School on Heterogeneity in Macroeconomics, Center for European Integration Studies (ZEI), Bad Honnef, Germany, July 4, 2011.

## **INVITED SEMINARS**

“Energy Transition Metals: Bottleneck for Net Zero Emissions?” Global Macro and Market Research Division, International Finance Corporation, The World Bank Group, Washington DC, October 20, 2022.

“Market Size and Supply Disruptions: Sharing the Pain from a Potential Russian Gas Shut-off to the EU.” International Policy Analysis Division Seminar, European Central Bank, Frankfurt, Germany, September 6, 2022 (virtual).

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” University of Hawaii at Manoa, Department of Economics Seminar Series, Manoa, HI, April 23, 2021 (virtual).

“A Dynamic Analysis of Collusive Action: The Case of the World Copper Market, 1882-2016.” Brownbag Seminar, Federal Reserve Bank of Dallas, Dallas, TX, July 15, 2020.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” University of Texas in Austin, Energy Institute, Energy Symposium, January 31, 2019.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” University Aix-Marseilles, Department of Economics Seminar Series, Aix-en-Provence, France, June 18, 2019.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” Colorado School of Mines, Division of Economics and Business Seminar Series, Golden, CO, October 14, 2019.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” Louisiana State University, Department of Economics, Research Seminar Series, Baton Rouge, LA, March 1, 2018.

“Collusion in the World Copper Market: A Long-Run Perspective.” Rice University, Houston, TX, October 17, 2018.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” European Central Bank, Frankfurt, Germany, July 26, 2018.

“What Drives Commodity Price Booms and Busts?” Texas A&M University, Department of Agricultural Economics, College Park, TX, February 10, 2017.

“Non-Renewable Resources, Extraction Technology, and Endogenous Growth.” University of Houston, Department of Economics Seminar Series, Houston, TX, May 9, 2017.

“Technological Change in Resource Extraction and Endogenous Growth.” University of Chicago, Energy Policy Institute, Faculty Workshop, Chicago, IL, March 23, 2015.

“Technological Change in Resource Extraction and Endogenous Growth.” University of Cologne, Institute of Energy Economics, July 16, 2015.

“What Drives Commodity Prices in the Long Run?” Bundesbank, Frankfurt, Germany, July 10, 2015.

“What Drives Commodity Prices in the Long Run?” European Central Bank, Frankfurt, Germany, July 9, 2015.

“Collusion in the World Copper Market: A Long-Run Perspective.” Federal Reserve Bank of Dallas, Research Department, Brownbag Seminar, Dallas, TX, September 27, 2016.

“Technological Change in Resource Extraction and Endogenous Growth.” Federal Reserve Bank of Dallas, Research Department, Brownbag Seminar, Dallas, TX, November 15, 2015.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Oxford University, Oxford Center for Analysis of Resource-Rich Economies (OxCarre), Oxford, United Kingdom, March 4, 2014.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” University Catholique de Louvain, Department of Economics, Louvain, Belgium, February 4, 2014.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” German Institute for Economic Research, Berlin, Germany, January 31, 2014.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Federal Reserve Bank of Dallas, Dallas, TX, January 28, 2014.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Board of Governors of the Federal Reserve System, Washington, DC, January 24, 2014.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Technical University Dortmund, November 13, 2013.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” International Monetary Fund, Research Department, Washington, DC, September 19, 2013.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Michigan State University, Department of Agricultural, Food, and Resource Economics, September 17, 2013.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” University of Illinois at Urbana Champaign, Department of Agricultural and Consumer Economics, Urbana-Champaign, IL, September 16, 2013.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” University of California at Berkeley, Department of Agricultural and Resource Economics, Berkeley, CA, September 13.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” University of California at Davis, Department of Agricultural and Resource Economics, Davis, CA, September 12, 2013.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” University of Cologne, Institute for Energy Economics, Cologne, Germany, May 16, 2013.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Hamburg Institute of International Economics, Hamburg, Germany, January 17, 2013.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” European Central Bank, Frankfurt, Germany, January 26, 2012.

“150 Years of Boom and Bust: What Drives Mineral Commodity Prices?” Centre for European Economic Research, Mannheim, Germany, November 8, 2012.

“Base Metals in a Model of Endogenous Growth.” Max Planck Institute for Research on Collective Goods, Early Stage Seminar, Bonn, Germany, March 15, 2011.

## **SPEECHES AND POLICY PRESENTATIONS**

“Impact of the Energy Transition on Commodity Prices.” (presented by Andrea Pescatori, contributed to Q&A) G7 Climate Change Mitigation Working Group, February 26, 2024 (virtual).

“Évaluation Préliminaire du Secteur Extérieur pour la Guinée.” Central Bank of Guinea, Conakry, Guinea, February 2, 2024.

“Impact Macroéconomique Potentiel du Projet de Minerai de Fer de Simandou.” (with Miguel Otero) Ministry of Finance and Economics of Guinea, Conakry, Guinea, February 9, 2024.

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” IMF Africa Training Institute, Mauritius, November 9, 2023 (virtual).

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” Bundesbank, Frankfurt, Germany, November 8, 2023 (virtual).

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” European Central Bank, Frankfurt, Germany, October 30, 2023 (virtual).

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” Central Bank of the United Arab Emirates, Abu Dhabi, United Arab Emirates, October 24, 2023.

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” Ministry of Finance of the Kingdom of Saudi Arabia, Riyadh, Saudi Arabia, October 22, 2023.

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” Central Bank of Ethiopia, Addis Ababa, October 20, 2023.

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” African Union, Addis Ababa, Ethiopia, October 20, 2023.

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” Central Bank of West African States, Dakar, Senegal, October 18, 2023.

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” National School of Economic Analysis and Statistics, Dakar, Senegal, October 18, 2023.

“Fragmentation and Commodity Markets: Vulnerabilities and Risks.” European Commission, DG Energy, Brussels, Belgium, October 16, 2023.

[“Fragmenting Commodity Markets: Geopolitics and the Impact on Food Security and the Clean Energy Transition.”](#) Atlantic Council, Washington DC, October 3, 2023.

“Energy Transition Metals.” Chief Economic Counselor of the Indian Government, Ministry of Finance, G20-Presidency, January 24, 2022 (virtual).

“Energy Crisis: Impact on the Economy and the Green Transition.” EU Commission – IMF Staff Climate Dialogue, October 24, 2022 (virtual).

“Market Size and Supply Disruptions: Sharing the Pain from a Potential Russian Gas Shut-off to the EU.” Meeting with the German Bundesbank, September 19, 2022.

“Energy Transition Metals.” Indonesia Development Talk on Indonesia’s Commodity Outlook: Prospects and Challenges, Asian Development Bank Indonesia, Jakarta, IN, May 8, 2022 (virtual).

“Copper as an Energy Transition Metal: Challenges and Policy Options.” International Copper Study Group, Environmental and Economic Committee, Lisbon, PO, April 29, 2022 (virtual).

“Energy Transition Metals May Become the New Oil in a Net-Zero Emissions Scenario.” (joint with N. Valcks) Economic Seminar Series, UK Foreign, Commonwealth and Development Office (Economics and Evaluation Directorate), London, UK, January 10, 2022 (virtual).

“World Economic Outlook.” Conference on Monitoring Commodity Markets organized by the Federation of German Industries and German Federal Mineral Resource Agency, Berlin, DE, June 1, 2021 (virtual).

“Global Oil Demand Forecast.” Federal Reserve Board, Oil Roundtable, Washington, DC, 2016.

“The China Effect: Review and Outlook.” (in German) German Federal Institute for Geosciences and Natural Resources, Annual Conference, November 4, 2013.

“The Impact of BRIC Countries on the Demand for Raw Materials.” (in German) German Federal Resource Agency, Conference on the Opening Day of the Agency, Berlin, Germany, August 28, 2012.

“Export Barriers in Steelmaking Raw Material Markets.” OECD Steel Committee Meeting, Paris, France, May 6, 2010.

“The Impact of BRIC Countries on Mineral Commodity Markets.” Federal Institute for Geosciences and Natural Resources, Hanover, Germany, December 1, 2011.

“Raising Tax Revenues from the Extractive Sector in Sub-Saharan Africa. Potentials and Policy Options.” EU-EITI National Coordinators Meeting, Brussels, Belgium, November 9, 2010.

“Raising Tax Revenues from the Extractive Sector in Sub-Saharan Africa. Potentials and Policy Options.” German Development Institute, January 14, 2010.

“Government Revenues from the Extractive Sector in Sub-Saharan Africa: A Potential for Funding the MDGs?” Federal Ministry for Economic Cooperation and Development, Bonn, Germany, February 25, 2009.

“Government Revenues from the Extractive Sector in Sub-Saharan Africa: A Potential for Funding the MDGs?” United Nations Development Program, Poverty Reduction Group, New York, NY, June 6, 2008.

“Government Revenues from the Extractive Sector in Sub-Saharan Africa: A Potential for Funding the MDGs?” World Bank, Washington, DC, June 2, 2008.

“Government Revenues from the Extractive Sector in Sub-Saharan Africa: A Potential for Funding the MDGs?” World Bank, Washington, DC, June 2, 2008.

“Government Revenues from the Extractive Sector in Sub-Saharan Africa: A Potential for Funding the MDGs?” (in German) Federal Institute for Geosciences and Natural Resources, Technical Cooperation Meeting, Hanover, Germany, May 9, 2008.

“Government Revenues from the Extractive Sector in Sub-Saharan Africa: A Potential for Funding the MDGs?” (in German) Federal Institute for Geosciences and Natural Resources, Jour Fixe, Hanover, Germany, April 23, 2008.

## **UNPUBLISHED CONFERENCE DISCUSSIONS**

“Stirred Not Shaken: Electricity Markets with Speculative Storage and Stochastic Generation and Demand,” by C.K. Krishnamurthy, A. Shanker and D. Stern, Annual Meeting of the Eastern Economics Association, session organized by the Association of Environmental and Resource Economists, New York, NY, February 26, 2023.

“Environmental Performance, Financial Conditions, and Capital Investment,” by Hong V. Nguyen, Annual Meeting of the Eastern Economics Association, session organized by the Association of Environmental and Resource Economists, New York, NY, February 26, 2023.

“Ethanol Price Discovery in U.S. Terminal Markets,” by M. Gerveni, T. Serra, and S. Irwin, T. Hubbs, Commodity and Energy Market Association Annual Meeting 2022, Chicago, IL, June 21, 2022 (virtual).

“Commodity Demand: Drivers, Outlook, and Implications,” by John Baffes and Peter Nagle, Prospects Group Seminar, December 9, 2021 (Virtual).

“Stability of Collusion and Quality Differentiation: A Nash Bargaining Approach,” by T. Athanasopoulos, B. Dindaroglu and G. Petropoulos. International Industrial Organization Conference, May 1, 2021 (Virtual).

“Integrated Assessment in a Multi-Region World with Multiple Energy Sources and Endogenous Technical Change,” by J. Hassler, P. Krusell, C. Olovsson and M. Reiter, Central Bank Research Association Workshop on Commodities and Macroeconomics, Rome, September 27, 2019.

“Monopoly Power in the Oil Market and the Macroeconomy,” by N. Branger et al, R. Flacke and N. Graeber, JP Morgan Center for Commodities International Commodities Symposium, Denver, August, 2019.

“Oil Price Elasticities and Oil Price Fluctuations,” by D. Caldara, M. Cavallo and M. Iacoviello, Federal Reserve International Economics Meeting, San Francisco, April 7, 2018.

“Local Labor Market Shocks and Employment and Earnings Differentials: Evidence from Shale Oil and Gas Booms,” by Gregory Upton and Han Yu, ASSA/International Association for Energy Economics, Philadelphia, January 6, 2018.

“Response of Consumer Debt to Income Shocks: The Case of Energy Booms and Busts,” by Jason P. Brown, ASSA/Association of Environmental and Resource Economists, Philadelphia, January 5, 2018.

“Supply Flexibility in the Shale Patch: Evidence from North Dakota,” by H. Bjørnland, F. Nordvik, and M. Rohrer, CEBRA Workshop for Commodities and Macroeconomics, Board of Governors, Washington D.C., September 29, 2017.

“Narrative Sign Restrictions for SVARs,” by J. Antolin-Diaz and J. Rubio-Ramirez, Texas Monetary Conference, Dallas, April 28, 2017.

“Oil Price Elasticities and Oil Price Fluctuations,” by D. Caldara, M. Cavallo and M. Iacoviello, Federal Reserve System Energy Meeting, Houston, November 17, 2016.

“Finders, Keepers?” By N. Jaakkola, D. Spiro, and A. von Benthem, NBER Meeting on the Economics of Commodity Markets, Boston, September 17, 2016.

“The Rubble Between the Hammer and the Anvil: The Economic Impact of Economic Sanctions and Oil Prices,” by C. Dreger, K. Kholodilin, D. Ulbricht, and J. Fidrmuc, ASSA/ Meeting of the Association of Comparative Economic Studies, San Francisco, January 5, 2016.

“Peer Information Effects in Contract Negotiations: Evidence from Oil and Gas Leases,” by B. Ganglmair and A. Shcherbakova, ASSA/ Meeting of the U.S. Association for Energy Economics, San Francisco, January 4, 2016.

“A Microeconomic Dynamic Structural Model of Copper Mining Decisions,” by V. Aguirregabiria, Annual Meeting of the Canadian Economic Association, Toronto, Canada, May 30, 2015.

“Trends and Fluctuations in Base Metal Prices,” by N. Bao Anh and A. Semenov, Annual Meeting of the Canadian Economic Association, Toronto, Canada, May 30, 2015.

“Private Royalties from U.S. Onshore Oil and Gas Production: Their Size, Geographic Distribution, and Determinants,” by J. Brown, Federal Reserve System Regional Meeting, San Antonio, November 5, 2014.

“Gain without Pain? Renewable Energy and Economic Growth in EU Countries,” by A. Kazukauskas et al. World Congress of Environmental and Resource Economists, Istanbul, Turkey, July 1, 2014.

## **IMF COUNTRY WORK**

One-off assignment to the Guinea Tea, Article 4 Mission and Request for a Rapid Credit Facility, December 2023 to May 2024.

- In charge of real sector files and analysis
- External sector analysis, including using the Eba-lite model
- Analysis of the macroeconomic impact of fuel shortages
- Selected Issues Paper on the macroeconomic impact of the Simandou Iron Ore Mine project
- Contributed to Policy Note, Staff Report, Letter of Intent, Back to Office Report.
- Two Presentations two authorities during the mission, prepared and lead several meetings with the authorities and other stake holders.

## **FORMER POLICY WORK AT THE FEDERAL RESERVE**

- Briefed Bank President on energy markets, the energy transition and climate change in preparation of the Federal Open Market Committee meetings and other occasions.
- Wrote memos on the Federal Reserve Board’s Tealbook A and on monetary policy questions related to energy markets. Contribute to internal policy discussions.
- Drafted essays and speeches on energy markets and climate change for Bank President.
- Contributed to our internal forecast for global oil markets and U.S. oil production.
- Conducted outreach to a broad variety of executives in the oil and gas, renewables and energy finance industries; summarize key findings for briefings and internal discussions.

- Co-founded and co-organized the System Energy Meeting and the Dallas Fed and Kansas City Fed Joint Energy Conference, as well as helped to develop the Dallas Fed Energy Survey.

## REFEREEING

Acta Astronautica, American Economic Review Insights, Conservation & Recycling, Economics Letters, Economics of Energy & Environmental Policy, Economic Inquiry, Economic Policy, Empirical Economics, Energy Economics, Environment and Planning C, International Energy Agency (World Energy Investment Report, Energy Technology Perspectives, Critical Minerals Markets Review), International Finance, International Journal of Central Banking, Journal of Commodity Markets, Journal of Economic Theory, Journal of Environmental Economics and Management, Journal of International Money and Finance, Journal of Financial Stability, Journal of Money, Credit and Banking, Journal of Political Economy, Journal of Public Economics, Journal of Regulatory Economics, Mineral Economics, Resources, National Science Foundation, Proceedings of the National Academy of Sciences, Resources Policy, Science, The Energy Journal, Oxford Bulletin of Economics and Statistics, Quarterly Review of Economics and Statistics.

## TEACHING EXPERIENCE

Winter 2023/24 Applied Time Series Analysis and Forecasting, University of Maryland, College Park.  
 Spring 2023 Applied Time Series Analysis and Forecasting. University of Maryland, College Park.  
 Spring 2022 Applied Time Series Analysis and Forecasting. University of Maryland, College Park.  
 Spring 2014 Growth and Natural Resources. Honors Seminar, University of Bonn.  
 Fall 2013 Growth and Natural Resources. Undergraduate Seminar, University of Bonn.  
 Spring 2013 Growth and Natural Resources. Honors Seminar, University of Bonn.

## SCHOLARSHIPS, GRANTS AND AWARDS

2016 Dallas Fed Team of the Year (Dallas Fed Energy Survey).  
 2010-2012 Research Grant “Determinants of Long Price Cycles in Mineral Commodity Markets,” German Development Institute.  
 2008-2010 Research Grant “Increasing Government Revenues from the Extractive Sector in Sub-Saharan Africa,” German Development Institute.  
 2008-2011 Research Grant “The Impact of Economic Growth in Emerging Economies on Mineral Commodities Markets.” Federal Institute for Geosciences and Natural Resources.  
 2003 - 2007 Scholarship. German-French University.  
 2003 - 2007 Scholarship. Heinrich Böll Foundation.

## SOFTWARE

MATLAB (including parallel processing), STATA, Eviews, MS OFFICE, LaTeX.

## LANGUAGES

German (native), English (fluent), French (fluent).

## **CONTINUOUS LEARNING**

Strategic Negotiation and Influencing Skills, March 15-24, 2023.

IMF/Media & Public Relation Training, February 1-2, 2023.

Collaboration and Community in Hybrid Teams (Virtual), November 10, 2022.

Coaching for Performance for Staff, 2022 and 2023.

IGNITE – Leadership Seminar (several sessions)

Personal Accountability and Resilience Seminar, May 23, 2022.

## **MEDIA**

Interview: on "Energy Transition Metals" off the record with Matthieu Favas, Finance Correspondent, The Economist, London, November 16, 2021.

Mentions of work in Financial Times (several), Reuters, Bloomberg, The Guardian, Die Welt, Wall Street Journal, RBB Radio, Deutsche Welle.

## **PEOPLE LEADERSHIP**

Hiring-Committee for Research Analyst position, Joseph Moussa (Columbia University), 2023.

Informal Co-Supervisor of Consultant Abdullah Albijadi (University of Maryland), research project on “Economic Consequences of Large Extraction Declines: Lessons for the Green Transition.” April 2023.

Co-Team Lead “World Economic Outlook, October 2023, Analytical Chapter 2 on “A Fragmented Commodities Landscape – What Consequences for the Global Economy.”

Co-Supervisor of Summer Intern Lukas Boehnert (PhD candidate at Oxford University), research project on “The Energy Transition and the Macroeconomic Impact of Declining Fossil Fuel Extraction.” Summer 2022.

Co-Supervisor of Summer Intern Lukas Boer (PhD candidate at Humboldt University, Berlin – joint IMF EP Program in 2022), research project on “Energy Transition Metals,” Summer 2021.

Helped Hiring Research Analyst position, Rachel Brasier, 2021.

## **CITIZENSHIPS**

United States of America, Germany

Last updated: February 28, 2024.