

# VALERIE J. KARPLUS

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- EMPLOYMENT**
- Assistant Professor, Global Economics and Management Group, Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA (July 2014 – Present)**
  - Visiting Assistant Professor, Management Science and Engineering, Stanford University, Palo Alto, CA (January – June 2017)**
  - Co-Director, China Energy and Climate Project (July 2011 – May 2016) / Research Scientist, MIT Joint Program on the Science and Policy of Global Change (July 2011 – June 2014), Massachusetts Institute of Technology, Cambridge, MA**
  - Research Associate, National Institute of Biological Sciences, Beijing, China (2005-2006)**
  - Fellow, Robert Bosch Fellowship Program, worked at the German Federal Foreign Office (Berlin, Germany) and KfW Development Bank (Frankfurt, Germany) (2004-2005)**
  - Luce Scholar, Luce Scholars Program, College of Humanities and Development, China Agricultural University, Beijing, China (2002-2003)**
- EDUCATION**
- Massachusetts Institute of Technology, Cambridge, MA, Ph.D., Engineering Systems Division (Technology, Management, and Policy), June 2011.**
  - Massachusetts Institute of Technology, Cambridge, MA, M.S., Technology and Policy and Civil and Environmental Engineering, June 2008.**
  - Yale University, New Haven, CT, B.S., Molecular Biophysics and Biochemistry and Political Science, May 2002.**
- LANGUAGES**
- English (native), Mandarin Chinese (fluent), German (fluent)
- AWARDS**
- Top 40 Management Professors Under 40 (Poets and Quants), Pyke Johnson Paper Award (2012), USAEE/IAEE Student Paper Award (2010), EPA STAR Graduate Fellowship (2010), Martin Family Fellowship for Sustainable Development Professionals (2009-2010), Atlantik-Brücke e.V. Young Leader (2008), Robert Bosch Fellowship (2004-2005), Luce Scholars Program (2002-3)
- MEMBERSHIPS**
- International Association of Energy Economics, Transportation Research Board (Energy and International Trade and Transport Committees), U.S.-China Climate Change Track II
- TEACHING**
- Global Strategy and Organization (MIT, Spring 2014, Fall 2014)
  - New Models for Global Business (MIT, Fall 2015)
  - Entrepreneurship without Borders (MIT, Fall 2014, Fall 2015)
  - China and India Lab (MIT, Spring 2018)
  - Global Energy: Politics, Markets, and Policies (MIT, 2018)
  - Mentor for Global Entrepreneurship Lab, China Lab, Global Organizations Lab (MIT, 2015-2018)
  - TA for Applications of Technology in Energy and the Environment (MIT, Fall 2007)
  - Various short courses on energy, climate change, transportation, and microeconomics (MIT)

## RESEARCH IN PROGRESS

### Draft Papers with Analysis Complete:

Karplus, V., Zhang, S., and Almond, D. (2018). Did scrubbing the government clean up the air? The dynamic effects of China's anticorruption campaign on local air quality.

Karplus, V., Geissmann, T., and Zhang, D. (2018). One Country, Multiple Capitalisms: Institutions and the Value of Management Practices in China.

Karplus, V. and Zhang, D. (2018). Management and energy efficiency in a Chinese manufacturing cluster. [ARCS Conference Paper](#)

### Complete Working Papers:

Filippini, M., Geissmann, T., Karplus, V., and Zhang, D. (2017). A green bargain? The Impact of an Energy Saving Program on Productivity Growth in China's Iron and Steel Industry. [MIT CEEPR Research Brief](#) [SSRN Working Paper](#)

Karplus, V., Huang, Y., and Zhang, D. (2017). State control as a substitute for regulation? Evidence from Cities in China. [SSRN Working Paper](#)

Karplus, V., Shen, X., and Zhang, D. (2017). Herding Cats? Firm-level Performance in China's Industrial Energy Conservation Program.

Singh, A., Winchester, N., and Karplus, V. (2017). Evaluating India's Climate Targets: The Implications of Economy-Wide and Sector-Specific Policies.

Karplus, V., Zhang, S., and Almond, D. (2018). Evaluating tighter air pollution standards in China using high-frequency plant and satellite data.

Helveston, J.P., Wang, Y., Karplus, V., and Fuchs, E.R.H. (2017). Innovating Up, Down, and Sideways: The (Unlikely) Institutional Origins of Experimentation in China's Plug-in Electric Vehicle Industry. [SSRN Working Paper](#)

Li, M., Zhang, D., Li, C.-T., Mulvaney, K., Selin, N., and Karplus, V. (2017). Air quality co-benefits of carbon pricing in China. Accepted at *Nature Climate Change*.

## PEER-REVIEWED RESEARCH

Wong, C. and Karplus, V. (2017). China's War on Air Pollution: Can Existing Governance Structures Support New Ambitions? *The China Quarterly*, 1-23.

Karplus, V. J., & Zhang, X. (2017). Incentivizing firm compliance with China's national emissions trading system. *Economics of Energy & Environmental Policy*, 6(2), 73-86.

Kishimoto, P.N., Karplus, V.J., Zhong, M., Saikawa, E., Zhang, D., & Zhang, X. (2017). The impact of coordinated policies on air pollution emissions from road transportation in China. *Transportation Research Part D: Transport and Environment*, 54, 30-49.

Luo, X., Zhang, D., Caron, J., Zhang, X.L., Karplus, V.J. (2016). Dynamic Effects of Interprovincial Migration on the Stringency of Energy Policy in China. *Energy Economics*, 58, 164-173.

- Davidson, M., Zhang, D., Xiong, W., Zhang, X., and Karplus, V.J. (2016). Integrating Wind into China's Coal-Heavy Electricity System. *Nature Energy*, 1, 1-7.
- Karplus, V., Rausch, S., and Zhang, D. (2016). Energy Caps: Alternative Climate Policy Instruments for China? *Energy Economics*, 56, 422-431.
- Zhang, X., Karplus, V., Qi, Tianyu, Zhang, D., and He, J. (2016). CO<sub>2</sub> Emissions in China: How Far Can New Efforts Bend the Curve? *Energy Economics*, 54, 388-395.
- Zhang, D., Springmann, M., and Karplus, V. (2015). Equity and Emissions Trading in China. *Climatic Change*, 134, 131-146.
- Karplus, V., Kishimoto, P., and Paltsev, S. (2015). The Global Energy, CO<sub>2</sub> Emissions and Economic Impact of Vehicle Fuel Economy Standards. *Journal of Transport Economics and Policy*, 49(4), 517-538.
- Springmann, M., Zhang, D., and Karplus, V. (2015). Consumption-Based Adjustment of Emissions-Intensity Targets: An Economic Analysis for China's Provinces. *Environmental and Resource Economics*, 61(4), 615-640.
- Cao, J. and Karplus, V. (2014). Firm-Level Determinants of Energy and Carbon Intensity in China. *Energy Policy*, 75, 167-178.
- Zhang, D., Karplus, V., Cassisa, C., & Zhang, X. (2014). Emissions Trading in China: Progress and Prospects. *Energy Policy*, 75, 9-16.
- Qi, T., Winchester, N., Karplus, V.J., and Zhang, X. (2014a). Will Economic Restructuring in China Reduce Trade-embodied CO<sub>2</sub> Emissions? *Energy Economics*, 42, 204-212.
- Qi, T., Zhang, X., and Karplus, V.J. (2014b). The Energy and CO<sub>2</sub> Emissions Impact of Renewable Energy Development in China. *Energy Policy*, 68, 60-69.
- Nam, K.-M., Waugh, C.J., Paltsev, S., Reilly, J.M. and Karplus, V.J., (2014). Synergy between Pollution and Carbon Emissions Control: Comparing China and the U.S. *Energy Economics*, 46, 186-201.
- Rausch, S. & Karplus, V.J. (2014). Markets vs. Regulation: The Efficiency and Distributional Impacts of U.S. Climate Policy Proposals. *Energy Journal*, 35(SI1), 199-227.
- Karplus, V.J., Paltsev, S., Babiker, M., & Reilly, J.M. (2013a). Should a Vehicle Fuel Economy Standard be Combined with an Economy-wide Greenhouse Gas Emissions Constraint? Implications for Energy and Climate Policy in the United States. *Energy Economics*. 36, 322-333.
- Karplus, V.J., Paltsev, S., Babiker, M., & Reilly, J.M. (2013b). Applying Engineering and Fleet Detail to Represent Passenger Vehicle Transport in a Computable General Equilibrium Model. *Economic Modelling*. 30, 295-305.
- Nam, K.-M., Waugh, C., Paltsev, S., Reilly, J., & Karplus, V. (2013). Carbon Co-benefits of Tighter SO<sub>2</sub> and NO<sub>x</sub> Regulations in China. *Global Environmental Change*, 23(6), 1648-1661.
- Zhang, D., Rausch, S., Zhang, X., & Karplus, V. (2013). Quantifying Regional Economic Impacts of CO<sub>2</sub> Intensity Targets in China. *Energy Economics*, 40, 687-701.
- Karplus, V.J. and Paltsev, S. (2012). Proposed Vehicle Fuel Economy Standards in the United States for 2017 to 2025: Impacts on the Economy, Energy, and Greenhouse Gas Emissions. *Transportation Research Record*, 2287, 132-139. (Winner of the Pike Johnson Best Paper Award.)

- Paltsev, S., Morris, J., Cai, Y., Karplus, V.J., & Jacoby, H. (2012). The Role of China in Mitigating Climate Change. *Energy Economics*, 34(S3), S444-S450.
- Karplus, V.J., Paltsev, S., & Reilly, J. M. (2010). Prospects for Plug-in Hybrid Electric Vehicles in the United States and Japan: A General Equilibrium Analysis. *Transportation Research Part A*. 44(8), 620-641.
- Sandoval, R., Karplus, V., Paltsev, S., & Reilly, J. M. (2009). Modeling Prospects for Hydrogen Powered Transportation Through 2100. *Journal of Transport Economics and Policy*. 43(3), 291-316.
- Chen, H., Karplus, V.J., Ma, H., & Deng, X.W. (2006). Plant biology research comes of age in China. *The Plant Cell*, 18(11), 2855-2864.

## SELECTED BOOKS, CHAPTERS, & OTHER PUBLICATIONS

- Karplus, V., Lessard, D.R., and Rajpurkar, N. (2017). Institutional enablers of energy system transition: Lessons from solar PV in eight African countries. Book chapter for *Achieving Collective Ends with Limited Resources: Africa's Struggle to Bridge the Infrastructure Gap*.
- Jenkins, J. and Karplus, V. (2017). Carbon Pricing under Political Constraints: Insights for Accelerating Clean Energy Transitions. In *The Political Economy of Clean Energy Transitions*. Chapter 3. Oxford University Press.
- Davidson, M., Karhl, F., and Karplus, V. (2017). Towards a Political Economy Framework for Wind Power Does China Break the Mould? In *The Political Economy of Clean Energy Transitions*. Chapter 13. Oxford University Press.
- Karplus, V. and Zhang, X.L. (2016). 空气污染和气候变化的双控策略 (Coordinated Policy Strategies for Air Pollution and Climate Change, in Chinese), Annual Review of Low Carbon Development in China (Chapter 10).
- Karplus, V. (2015). Double Impact: Why China Needs Coordinated Air Quality and Climate Strategies (in English and Chinese). Energy and Environmental Paper Series. Chicago, IL: Paulson Institute.
- Karplus, V.J. (2013, July 26). Policy: Carbon emissions in China's trade. *Nature Climate Change*, 3, 703–704.
- Karplus, V.J. (2014). China. In Castle, D., Phillips, P., & Smith, S., *Handbook on Agriculture, Biotechnology, and Development*. Chapter 4. Edward Elgar.
- Karplus, V.J. (2012, Feb. 22). The case for a higher gasoline tax. *New York Times*, A23. (<http://www.nytimes.com/2013/02/22/opinion/the-case-for-a-higher-gasoline-tax.html>).
- Heywood, J.B. & Karplus, V.J. (2009, Aug. 22). Electric vehicles aren't the solution—yet (Editorial). *The Boston Globe*, A9.
- Karplus, V.J. & Deng, X. W. (2008). *Agricultural biotechnology in China: Origins and prospects*. New York, NY: Springer.
- Karplus, V.J. (2005, April 1). HIV/AIDS in China: Bewertung des Problems/mögliche deutscher Beitrag zur HIV/AIDS Bekämpfung." (In German) Report for the State Minister for Europe and State Minister for External Affairs of the German Federal Foreign Office, Berlin, Germany.

## INVITED PRESENTATIONS (SINCE 2015)

### **2018**

Presenter. Allied Social Sciences Association Annual Meeting, January 5, 2018.  
Title: Institutions and Emissions Trading in China

## **2017**

Presenter. Seminar in Environmental Economics and Policy, Harvard Kennedy School, Cambridge, MA, USA, October 25, 2017.

Title: Co-benefits of Energy and Environmental Policy: Evidence from Industrial Firms in China

Discussant. Workshop: "International Cooperation in East Asia to Address Climate Change," Harvard Project on Climate Agreements, Harvard Project on Climate Agreements, Harvard Center Shanghai, Shanghai, China, Sept. 27, 2017.

Presenter. Workshop: "Market Mechanisms and the Paris Agreement," Harvard Project on Climate Agreements, Harvard Kennedy School, Cambridge, MA, USA, July 6, 2017.

Title: The Status of China's National Emissions Trading System

Panel Moderator. Panel: "Energy Access in Developing and Emerging Countries." International Association for Energy Economics Annual Meeting, Singapore, June 19, 2017.

Presenter. Alliance for Research on Corporate Sustainability, Ninth Annual Research Conference, Rotterdam School of Management, Rotterdam, The Netherlands, June 16, 2017.

Title: Management and Energy Efficiency in a Chinese Manufacturing Cluster

Presenter. Eleventh Conference on the Economics of Energy and Climate Change, Toulouse School of Economics, Toulouse, France, June 6, 2017.

Title: Incentivizing Firm Compliance with China's National Emissions Trading System

Presenter. Stanford Woods Institute Seminar, Stanford University, Stanford, CA, USA, May 23, 2017.

Title: Managing the Origins of Air Pollution and Climate Change in China's Industrial Firms

Presenter. Stanford Energy and Environmental Policy Analysis Center Lunch Seminar, Stanford, CA, USA, April 17, 2017.

Title: A Green Bargain? The Impact of an Energy Saving Program on Productivity Growth in China's Iron and Steel Industry.

Discussant. Panel: "Economic and Political Incentives of Local Cadres in China," Association for Asian Studies Annual Conference, Toronto, Canada, March 18, 2017.

Presenter. Seminar for Civil and Environmental Engineering Department, University of Washington, Seattle, WA, USA, April 10, 2017.

Title: Air Quality Co-benefits of Climate Policy in China

Presenter. Seminar at School of International and Public Affairs, Columbia University, New York, NY, USA, March 20, 2017.

Title: Air Quality Co-benefits of Climate Policy in China

Presenter. RFF/Stanford SEEPAC Workshop: "Design of China's National Emissions Trading System," Stanford University, Stanford, CA, USA, Jan. 12, 2017

Title: Incentivizing Firm Compliance with China's National Emissions Trading System

Presenter and Discussant. Panel: "Quantifying Causes and Consequences of Air Pollution in China." Allied Social Sciences Association Annual Meeting, Chicago, IL, USA, Jan. 8, 2017.

Title: Do Local Government-Industry Linkages Affect Air Quality? Evidence from Chinese Cities

## **2016**

Presenter. NCSC-Harvard Workshop: "Design, Implementation, and Operation of China's National ETS," Harvard Project on Climate Agreements, Beijing, China, Dec. 16, 2016.

Title: Emissions Trading in China: Potential Impacts and System Design Challenges

Presenter. Social Science and Technology Seminar, Stanford University, Stanford, CA, USA. Sept. 27, 2016.  
Title: Management and Energy Efficiency in a Chinese Manufacturing Cluster.

Presenter. Energy Seminar, Stanford University, Stanford, CA, USA, March 7, 2016.  
Title: Managing Energy and Climate Change in China: Connecting Micro Decisions with Macro Impacts

Presenter. STEP (Science, Technology and Environmental Policy) Seminar, Princeton University, Princeton, NJ, USA, April 16, 2016.  
Title: Wind energy, grid operations, and China's low carbon energy transition

Moderator. Plenary Fireside Chat with Kandeh Yumkella, former United Nations Under-Secretary-General and the Special Representative of the Secretary-General for Sustainable Energy for All, MIT Energy Conference, Cambridge, MA, USA, March 5, 2016.

## **2015**

Presenter. ETH Zürich, Seminar in the Center for Energy Policy for Economics, Department of Management, Technology, and Economics, Zürich, Switzerland, Feb. 27, 2015.  
Title: Ownership and Pollution Control in China's Cities

Panelist. Panel: "Entrepreneurship in Asia," Conference: Expansion beyond Asia: Global Horizons. Harvard Project for Asian and International Relations, Harvard University, Cambridge, MA, USA, Feb. 16, 2015

Presenter. Fifth Annual Strategy Symposium on Emerging Markets. Rice University, Jones Graduate School of Business, Houston, TX, USA, April 24, 2015.  
Title: Air Pollution Management in Emerging Markets: Insights from Industrial Firms in China

Presenter. Emerging Markets Seminar, Northeastern University, D'Amore-McKim School of Business, Boston, MA, USA, April 29, 2015.  
Title: Firm Incentives and Environmental Control: Evidence from Chinese Cities

Presenter. Annual Conference of the Association of Environmental and Resource Economists, San Diego, CA, USA, June 4, 2015.  
Title: Environmental Regulatory Outcomes under Heterogeneous Firm Ownership

Presenter. Invited Seminar at the Center for Energy and Environmental Policy (CEEP), Chinese Academy of Sciences, Beijing, China, June 17, 2015.  
Title: Environmental Regulatory Outcomes under Heterogeneous Firm Ownership

Presenter. European Association of Energy and Resource Economics Annual Meeting, Helsinki, Finland, June 26, 2015.  
Title: Local and Global Implications of China's Climate Pledge

Presenter. Second Biennial Conference of China Development Studies, Shanghai Institute for National Economy, Shanghai Jiao Tong University, Shanghai, China, June 27, 2015.  
Title: Firm Incentives and Environmental Control: Evidence from Chinese Cities

Presenter. Stanford University Energy Modeling Forum, Snowmass, CO, USA, July 21-22, 2015.  
Title: Air Pollution Policy in Asia / BC from transportation: How much now, and future?

Panelist. Panel: "Prospects for a Low Carbon Transition in China," Conference: Meeting China's Climate Goals, Columbia University, New York, NY, USA, Sept. 22, 2015.

Panelist. Panel on “Local and Global Climate Action on the Path to Paris.” Open Public Forum hosted by World Resources Institute and the *Christian Science Monitor*, Boston, MA. Sept. 14, 2015.

Presenter. Salon hosted by the MIT Club of France, France-Amériques Club, Paris, France, Dec. 4, 2015.  
Title: Implications of Climate Policy in China for Energy and Air Quality

Presenter. Empirical Management Conference at Stanford University, Stanford, CA, USA, Dec. 11, 2015.  
Title: Management in China

#### **EXTERNAL ROLES & EDITORIAL BOARDS**

**Managing Editor**, *Economics of Energy and Environmental Policy*, International Association of Energy Economics (Fall 2016 – present)

**Research Associate**, China Energy Group, Lawrence Berkeley National Laboratory (2014 – present)

**Member**, External Advisory Board, Center for Climate and Energy Decision-Making (CEDM), Carnegie Mellon University (2015 – present)

**Member**, International Experts Group, China National Renewable Energy Center (2015 – present)