

**TOSHI H. ARIMURA**  
**(Toshihide ARMURA)**  
**(November 2020)**

**Present Position**

Professor  
Faculty of Political Science and Economics  
Waseda University  
1-6-1 Nishi-waseda  
Shinjyuku-ku, Tokyo 169-8050  
Japan

E-mail: arimura--at--waseda.jp  
(please replace --at-- with @)

**Major Fields of Concentration**

Environmental Economics, Energy Economics, Applied Econometrics, Climate Policy

**Academic Position**

Director, Research Institute for Environment Economics and Management, Waseda University 2016- present  
Fellow, Center for Organization Research and Design, Arizona State University 2016- present  
Program Officer, Grants-in-Aid for Scientific Research (Kakenhi), Ministry of Education, Culture, Sports, Science and Technology 2015-2017  
Professor, Faculty of Political Science and Economics, Waseda University 2012-present  
Professor, Department of Economics, Sophia University 2011-2012  
Director, Center for Environment and Trade Research, Sophia University 2009-2012  
Visiting Scholar, Environmental Unit, Science and Technology Foresight Center, National Institute for National Institute of Science and Technology Policy 2009-2011  
Visiting Associate Professor, George Mason University 2006-2008  
Visiting Research Scholar, Resources for the Future 2006-2008  
Associate Professor, Department of Economics, Sophia University 2004-2011  
Lecturer, Department of Economics, Sophia University 2000-2004

**Education**

| <i>Degree</i> | <i>Field</i>  | <i>Institution</i>      | <i>Year</i> |
|---------------|---|-------------------------|-------------|
| Ph.D.         | Economics<br>Title of Dissertation: "Essays on the US SO <sub>2</sub> Allowance Market" | University of Minnesota | 2000        |
| M.S.          | Environmental Sciences  | University of Tsukuba   | 1994        |
| B.A.          | History and Philosophy of Science   | University of Tokyo     | 1992        |

**Professional Experience**

2020-2022 Project Leader, "Designing carbon pricing instruments with consideration of the effective carbon rate: Reconciliation of efficiency and regional equity" the Environment Research and Technology Development Fund, the Environmental Restoration and Conservation Agency

2017-2019 Project Leader, JSPS Bilateral Program with German Academic Exchange Service (DAAD) "The role of non-state actors for individual climate protection activities and climate policy: A theoretical, experimental, and empirical analysis"

|            |   |
|------------|---|
| 2017-2019  | Project Leader, “An ex-post analysis of carbon pricing and the proposal of policy options to achieve the Japanese Long-term GHG emissions reduction target” the Environment Research and Technology Development Fund, the Environmental Restoration and Conservation Agency |
| 2012-2015  | Project Leader, “Economic Analysis of the New Market Mechanisms and Bilateral Offset Credits Mechanisms” Projects of Environmental Economics and Policy, Ministry of Environment, Government of Japan, Tokyo, Japan   |
| 2009-2012  | Project Leader, “Economic Analysis of the Linkage of Tradable Permit Systems in International Climate Policy and its Impacts on Japanese Economy” Projects of Environmental Economics and Policy, Ministry of Environment Government of Japan, Tokyo, Japan                 |
| 2009-2012  | Project Leader, “The Impact of Domestic Emission Trading on Competitiveness and International Climate Change Negotiation: A Law and Economics Approach” funded by Center for Global Partnership, Japan Foundation and Mitsui & Co., Ltd. Environment Fund.                  |
| 2004-2006  | Project Leader, “Empirical Analysis of the Impact that Environmental Policy has on Technological Innovation”: Economic and Social Research Institute, Cabinet Office, Government of Japan, Tokyo, Japan   |
| 2002-2005  | Research Consultant for Organization for Economic Co-operation and Development (Paris). Involved in a seven county survey, “Environmental Policy Design and Firm Level Management” and conducted econometric analysis with the data.  |
| 2003-2004  | Visiting Fellow, Economic and Social Research Institute, Cabinet Office, Government of Japan, Tokyo, Japan.   |
| 2003 May   | European Union Visitor Program, Brussels, Belgium   |
| 2003 March | Visiting Scholar, Resource for the Future, Washington D.C., U.S.A.  |
| 1998       | Research Assistant for Professor Michael Keane, Department of Economics, University of Minnesota  |
| 1991-1993  | Co-Researcher, Global Warming Response Team, National Institute for Environmental Studies, Tsukuba, Japan. Under the supervision of Tsuneyuki Morita, Head of Global Warming Response Team,   |

### **Professional Activities**

- Environmental Council, Tokyo Metropolitan Government (2019-Present)
- Carbon Pricing Subcommittee, Central Environment Council, Ministry of Environment, Japan (2018-Present)
- Domestic Emission Trading Subcommittee, Central Environment Council, Ministry of Environment, Japan (2010-2018)
- Taskforce for the Climate Change Issues, Prime Minister of Japan and his Cabinet (2009)
- “Green Innovation” Working Group, Council for Regulatory Reform, Cabinet Office, Japan (April 2010- July 2010)
- Ministry of Finance, Japan 2010
- Ministry of Economy, Trade and Industry, Japan 2005-2007
- Ministry of Foreign Affairs, Japan 2005
- Ministry of Internal Affairs and Communications, Japan 2004-2006
- Ministry of Land, Infrastructure and Transport, Japan 2002-2004
- Waste Reduce Committee of Chiyoda-ku, Tokyo, Japan. 2000-2001

## Professional Associations

- Asian Association of Environmental and Resource Economists  
Board of Director (2019-present)
- Society of Environmental Economics and Policy Studies  
Board of Director (2006-2012, 2014-2019)
- Japanese Economic Association.
- Sustainable Management Forum.  
Board of Director (2009-2015)
- Association of Environmental and Resource Economists.
- Society of Environmental Science, Japan  
Board of Director (2013-2017)

## Editorial Services

### Editorial Board

- Organization & Environment (2020- present)
- Review of Environmental Economics and Policy (2011- present)
- Agricultural and Resource Economics Review (2018- present)
- Economics of Energy & Environmental Policy (2011-2016)
- Environmental Economics and Policy Studies (2010- present)
- Environmental Science. (2010- 2017)

### Referee:

- Ecological Economics
- Economics of Energy & Environmental Policy
- Energy Journal
- Energy Policy
- Environmental Economics and Policy Studies
- Environmental Science.
- Journal for Association of Environmental and Resources Economists
- Journal of Environmental Economics and Management
- Sustainability Science
- Swiss Journal of Economics and Statistics
- The Japanese Journal of Labour Studies
- Urban and Housing Studies.

## (Selected Refereed) Journal Publications

"Advancement of Green Public Purchasing by Category: Do Municipality Green Purchasing Policies Have Any Role in Japan? " *Sustainability*, Vol.12, No.21, 1-24: 2020 (T. Miyamoto, N. Yajima and T. Tsukahara, coauthors)

"The role of staff assignment in implementing energy-conserving practices in small- and medium-sized firms: an empirical analysis based on data from a Japanese survey" *Energy Efficiency*, Vol. 13, No.7, 1763–1780. 2020 (M. Wakabayashi, coauthor)

"How much household electricity consumption is actually saved by replacement with Light-Emitting Diodes (LEDs)? " *Economic Analysis and Policy*, Vol. 68, 224-238: 2020 (H. Onuma and S. Matsumoto, coauthors)

"Energy-Related Environmental Policy and its Impacts on Energy Use in Asia" *Asian Economic Policy Review*, 1-18, published online: 2020 (M. Sugino, coauthor)

"The externality of vacant houses: The case of Toshima municipality, Tokyo, Japan" *Review of Regional Studies*, Vol. 50, No. 2, 1-22: 2020 (T. Sadayuki and Y. Kanayama, coauthors)

"The impact of the Tokyo emissions trading scheme on office buildings: what factor contributed to the emission reduction?" *Environmental Economics and Policy Studies*, 1-17, published online: 2020 (T. Abe, coauthor)

"The Effectiveness of Vehicle Emission Control Policies: Evidence from Japanese Experience" *Sophia Economic Review*, Vol. 6, No. 1 • 2, 35-54: 2020 (K. Iwata and T. Shimane, coauthors)

"Political Economy of Voluntary Approaches: A lesson from Environmental Policies in Japan" *Economic Analysis and Policy* Vol. 64, 41-53: 2019 (S. Kaneko, S. Managi, T. Shinkuma, M. Yamamoto and Y. Yoshida, coauthors)

"Labor Market Distortions and Welfare-Decreasing International Emissions Trading" *Environmental and Resource Economics*, Vol. 74, 271-293: 2019 (S. Takeda and M. Sugino, coauthors)

"Information leverage: The adoption of clean cooking fuel in Bhutan" *Energy Policy* Vol. 125, 181-195: 2019 (N. Dendup, coauthor)

"Cost-efficient strategy for reducing PM 2.5 levels in the Tokyo metropolitan area: An integrated approach with air quality and economic models" *PLOS ONE*, (vol 13, e0207623, 2018) : 2019 (Y. Kunugi, K. Iwata, E. Komatsu and Y. Hirayama, coauthors)

"Technology Transfer and Cost Structure of Clean Development Mechanism Projects: An Empirical Study of Indian Cases" *Environmental Economic and Policy Studies*, Vol. 19, No.3, 609-633: 2017 (N. Simon, M. Morita, A. Kuriyama and K. Koakutsu, coauthors)

"Multiplier Impacts and Emission Reduction Effects of Joint Crediting Mechanism: Analysis with a Japanese and International Disaggregated Input-Output Table" *Environmental Economic and Policy Studies*, Vol. 19, No.3, 451-457: 2017 (M. Sugino, M. Morita and K. Iwata, coauthors)

"Same concerns, same responses? A Bayesian quantile regression analysis of the determinants for supporting nuclear power generation in Japan" *Environmental Economics and Policy Studies*, Vol. 19, No. 3, 581-608: 2017 (Y. Omata and H. Katayama, coauthors)

"Do Social Norms Matter to Energy Saving Behavior?: Endogenous Social and Correlated Effects" *Journal of the Association of Environmental and Resource Economists*, Vol.30, No.2, 525-553: 2016 (H. Katayama and M. Sakudo, coauthors)

"Voluntary Agreements to Encourage Proactive Firm Action against Climate Change: An Empirical Study of Industry Associations' Voluntary Action Plans in Japan," *Journal of Cleaner Production*, Vol.112, No.4, 2885-2895: 2016 (M. Wakabayashi, coauthor)

"The Effect of ISO 14001 on Environmental Performance: Resolving Equivocal Findings" *Journal of Environmental Management*, Vol.166, No.15, 556-566: 2016 (N. Darnall, R. Ganguli and H. Katayama, coauthors)

"Do Households Under- or Over-Estimate Benefits from Energy Saving Behaviors?: Evidence from the Japanese Household Survey" *Energy for Sustainable Development*, Vol.25, 27-33: 2015 (K. Iwata and H. Katayama, coauthors)

"Output-Based Allocation of Emissions Permits for Mitigating the Leakage and Competitiveness Issues for the Japanese Economy" *Environmental Economics and Policy Studies*, Vol.16, 89-110: 2014 (S. Takeda, H. Tamechika, C Fischer and A. K. Fox, coauthors)

"The Effects of Alternative Carbon Mitigation Policies on Japanese Industries" *Energy Policy*, Vol. 62, 1254-1267: 2013 (M. Sugino and R. Morgenstern, coauthors)

"A New Insight into Environmental Innovation: Does the Maturity of Environmental Management Systems Matter?" *Ecological Economics*, Vol.94, 156-163: 2013 (E. Inoue and M. Nakano, coauthors)

"Cost-Effectiveness of Electricity Energy Efficiency Programs" *The Energy Journal*, Vol.33, No.2, 63-99: 2012 (S. Li, R. G. Newell, and K. Palmer, coauthors)

"A CGE Analysis of Border Adjustments Under the Cap-and-Trade System: A Case Study of the Japanese Economy" *Climate Change Economics*, Vol. 3, No. 1, 1250003-1-1: 2012 (S. Takeda and T. Horie, coauthors)

"The Effects of Voluntary Action Plans on Energy-Saving Investment: An Empirical Study of the Japanese Manufacturing Sector" *Environmental Economics and Policy Studies*, Vol.13, No.3, 237-257: 2011 (M. Sugino, coauthor)

"Is ISO 14001 a Gateway to More Advanced Voluntary Action? A Case for Green Supply Chain Management" *Journal of Environmental Economics and Management*, Vol.61, 170-182: 2011 (N. Darnall and H. Katayama, coauthors)

"Promotion of Carbon Capture and Storage Technology Using Carbon Emissions Trading Systems" *Science & Technology Trend*, No.120, 43-56: 2011 (S. Maeda, J. Wada and K. Urashima, coauthors)

"Economic Analysis of Japanese Air Pollution Regulation: An Optimal Retirement Problem under Vehicle Type Regulation in the NO<sub>x</sub>-Particulate Matter Law" *Transportation Research Part D*, Vol.21, No.3, 157-167: 2009 (K. Iwata, coauthor)

"Is a Voluntary Approach an Effective Environmental Policy Instrument? A Case for Environmental Management Systems" *Journal of Environmental Economics and Management*, Vol.55, No. 3, 281-295: 2008 (A. Hibiki and H. Katayama, coauthors)

"Economic Analysis on Motor-Vehicle Type Regulation: Policy Evaluation of NO<sub>x</sub>-PM Law" *Environmental Science*, Vol.21, No.2, 103-114: 2008 (K. Iwata, coauthor) (*in Japanese*)

“An Empirical Study of the SO<sub>2</sub> Allowance Market: Effects of PUC Regulations” *Journal of Environmental Economics and Management*, Vol.44, 271-289: 2002

## **Books**

An Evaluation of Japanese Environmental Regulations: Quantitative Approach from Environmental Economics, 2015, Germany, Springer (K. Iwata, coauthor)

An Evaluation of Japanese Environmental Regulations: Quantitative Approach from Environmental Economics, 2011, Tokyo, Japan, Sophia University Pres/Gyousei 240 pages (K. Iwata, coauthor) (*in Japanese*)

Introduction to Environmental Economics, 2002, Tokyo, Japan, Chuokoron-Shinsya, 220 pages (A. Hibiki, coauthor) (*in Japanese*).

## **Edited Volumes**

Carbon Pricing in Japan, 2020, Germany, Springer (S. Matsumoto, coeditor)

Frontiers of Environmental Economics, 2017, Tokyo, Japan, Nippon Hyoronsha, 327 pages (H. Katayama and S. Matsumoto, coeditors) (*In Japanese*)

New Market Mechanisms for GHG Emission Reduction : Economic Analysis of Joint Crediting Mechanisms and its Prospects, 2015, Tokyo, Japan, Nippon Hyoronsha, 180 pages, (*In Japanese*)

Climate Change Policies and International Trade: Economic and Legal Analysis of Emissions Trading and Border Tax Adjustment, 2012, Tokyo, Japan, University of Tokyo Press, 317 pages (M. Yomogida and T. Kawase, coeditors) (*In Japanese*)

Economic Analysis of Emission Trading and Energy Efficiency for Japanese Economy and Households, 2012, Tokyo, Japan, Nippon Hyoronsha, 216 pages, (S. Takeda, coeditor) (*In Japanese*)

## **Book Chapters**

"Climate Policy in Commercial Sector: A Survey on Commercial Building in Japan" A Chapter in Carbon Pricing in Japan. Edited by T. H. Arimura and S. Matsumoto, pp. 23-43, Springer: 2020 (H. Onuma, coauthor)

"An Empirical Study of the Tokyo Emissions Trading Scheme: An Ex Post Analysis of Emissions from University Buildings" A Chapter in Carbon Pricing in Japan. Edited by T. H. Arimura and S. Matsumoto, pp. 97-116, Springer: 2020 (T. Abe, coauthor)

"Energy Consumption in Transition: Evidence from Facility-Level Data" A Chapter in Carbon Pricing in Japan. Edited by T. H. Arimura and S. Matsumoto, pp. 129-150, Springer: 2020 (N. Yajima and T. Sadayuki, coauthors)

"Double Dividend of the Carbon Tax in Japan: Can We Increase Public Support for Carbon Pricing? " A Chapter in Carbon Pricing in Japan. Edited by T. H. Arimura and S.

Matsumoto, pp. 235-255, Springer: 2020 (K. Asakawa, K. Kimoto and S. Takeda, coauthors)

"Diffusion of Quality and Environmental Management Systems Through Global Value Chains: Cases of Malaysia and Vietnam, " A Chapter in Regulations and International Trade: New Sustainability Challenges for East Asia. Edited by E. Michida, J. Humphrey and K. Nabeshima, pp. 251-274, Palgrave Macmillan: 2017 (H. Iguchi, coauthor)

" A Policy Evaluation of the Eco Point Program," in Environmental Subsidies to Consumers: How Did They Work in the Japanese Market?, Edited by S. Matsumoto, pp.91-110, Routledge: 2016 (M.Morita, coauthor)

"Japanese Environmental Policy," in the Routledge Handbook of Environmental Economics in Asia, Edited by S. Managi, pp.516-531: 2015

"The Role of Local Government in the Voluntary Approach to Environmental Policy: A Case Study of Policy Mix and Multilevel Governance Aimed at Sustainable Development in Japan," in Governing Low-Carbon Development and the Economy, Edited by H. Niizawa and T.Morotomi, pp.132-146: 2012 (Y. Yamamoto, coauthor)

"An Empirical Study of Environmental R&D: What Encourages Facilities to be Environmentally-Innovative?" A chapter in Environmental Policy and Corporate Behaviour, Edited by Nick Johnstone, pp.142-173, Edward Elgar: 2007 (A. Hibiki and N. Johnstone, coauthors)

### **Thesis**

"Essays on the U.S. SO<sub>2</sub> Allowance Market, " Ph.D. Thesis, University of Minnesota: 2000

"A Study of the Relationship between CO<sub>2</sub> Emission Reductions and Economic Structural Change: Japan and Malaysia Input - Output Analysis," Master's Thesis in Environmental Science, University of Tsukuba: 1994 (*in Japanese*)

### **Research Grants**

|           |  |
|-----------|--|
| 2019-2021 | Asahi Glass Foundation   |
| 2017-2019 | Ministry of the Environment, the Environment Research and Technology Development Fund (2-2008) |
| 2015-2018 | Grants-in-Aid for Scientific Research, Japan Society for the Promotion of Science              |
| 2015-2016 | Asahi Glass Foundation   |
| 2013-2016 | Center for Global Partnership, Japan Foundation  |
| 2012-2015 | Ministry of the Environment the Environment Research and Technology Development Fund (2-1707)  |
| 2012      | The Seimeikai Foundation   |
| 2012-2015 | Grants-in-Aid for Scientific Research, Japan Society for the Promotion of Science              |
| 2009-2012 | Ministry of Environment  |
| 2009-2012 | Center for Global Partnership, Japan Foundation  |
| 2009-2012 | Mitsui & Co., Ltd. Environment Fund.   |
| 2008-2010 | Sumitomo Foundation  |

2006-2008 Abe Fellowship, Center for Global Partnership, Japan Foundation  
 2005-2006 Showa Shell Sekiyu Foundation for Promotion of Environmental Research  
 2002-2006 Grants-in-Aid for Scientific Research, Japan Society for the Promotion of Science  
 2003-2005 Organization for Economic Co-operation and Development  
 2001-2004 Global Environmental Research Fund, Ministry of the Environment, Japan.  
 2001-2003 Asahi Glass Foundation.  
 2002 Showa Shell Sekiyu Foundation for Promotion of Environmental Research.

### **Honors and Awards**

2020 Outstanding Publication Award, Society of Environmental Science and Japan  
 2018 SEEPS Outstanding Publication Award, The Society for Environmental Economics and Policy Studies  
 2018- Core Researcher, Waseda University  
 2012 SEEPS Young Achievement Award, The Society for Environmental Economics and Policy Studies  
 2012 Outstanding Publication Award, Sustainable Management Forum of Japan  
 2005- Abe Fellow  
 2001 Research Fellowship, Japan Economic Research Foundation.  
 1997-1998 Walter Heller Fellowship, University of Minnesota, Minneapolis, Minnesota.  
 1994-1995 Graduate School Fellowship, University of Minnesota, Minneapolis, Minnesota.  
 1994 Valedictorian, Master's program in Environmental Science, University of Tsukuba, Tsukuba, Japan.  
 1992-1994 First Category Scholarship, Japan Scholarship Foundation, Tokyo, Japan.