

Tomohiro Kitamura

Lecturer
Faculty of Economics, Fukuyama University
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Education

1. Ph.D., Economics, Kobe University, March 2018
2. M.A., Economics, Kobe University, March 2015
3. B.A., Economics, Osaka Prefecture University, March 2013

Employment

1. Lecturer, Faculty of Economics, Hiroshima University, April 2024–Present
2. Assistant Professor, Faculty of Commerce, Doshisha University, April 2021–March 2024
3. Lecturer, Graduate School of Economics, Kobe University, April 2018–March 2021

Fellowship

1. Research Fellow of Japan Society for the Promotion of Science (DC2), April 2016–March 2018

Academic Experience

- Full-time Instructor
 1. Graduation Thesis (Undergraduate), Faculty of Economics, Fukuyama University, April 2024–Present (in Japanese)

2. Seminar II (Undergraduate), Faculty of Economics, Fukuyama University, April 2024–Present (in Japanese)
3. Introduction to Microeconomics (Undergraduate), Faculty of Economics, Fukuyama University, April 2024–Present (in Japanese)
4. Basic Seminar (Undergraduate), Faculty of Economics, Fukuyama University, April 2024–Present (in Japanese)
5. Freshmen’s Seminar (Undergraduate), Faculty of Economics, Fukuyama University, April 2024–Present (in Japanese)
6. Econometrics (Undergraduate), Faculty of Economics, Fukuyama University, April 2024–Present (in Japanese)
7. Economic Statistics I (Undergraduate), Faculty of Economics, Fukuyama University, April 2024–Present (in Japanese)
8. Economic Statistics I (Undergraduate), Faculty of Economics, Fukuyama University, April 2024–Present (in Japanese)
9. Introduction to Statistics (Undergraduate), Faculty of Commerce, Doshisha University, September 2023–January 2024 (in Japanese)
10. Introduction to Statistics (Undergraduate), Faculty of Commerce, Doshisha University, April 2023–July 2023 (in Japanese)
11. Introduction to Statistics (Undergraduate), Faculty of Commerce, Doshisha University, September 2022–January 2023 (in Japanese)
12. Introduction to Statistics (Undergraduate), Faculty of Commerce, Doshisha University, April 2022–July 2022 (in Japanese)
13. Introduction to Statistics (Undergraduate), Faculty of Commerce, Doshisha University, September 2021–January 2022 (in Japanese)
14. Introduction to Statistics (Undergraduate), Faculty of Commerce, Doshisha University, April 2021–July 2021 (in Japanese)
15. Microdata Analysis (Graduate), Graduate School of Economics, Kobe University, October 2020–January 2021 (in Japanese)
16. Microdata Analysis II (Undergraduate), Faculty of Economics, Kobe University, October 2020–January 2021 (in Japanese)
17. Economics A (Undergraduate), Institution for Promotion of Higher Education, Kobe University, July 2020–August 2020 (in Japanese)
18. Basic Seminar (Undergraduate), Faculty of Economics, Kobe University, June 2020–August 2020 (in Japanese)
19. Microdata Analysis I (Undergraduate), Faculty of Economics, Kobe University, May 2020–July 2020 (in Japanese)
20. 1st-year Students Seminar (Undergraduate), Faculty of Economics, Kobe University, May 2020–June 2020 (in Japanese)
21. Economics A (Undergraduate), Institution for Promotion of Higher Education, Kobe University, December 2019–January 2020 (in Japanese)

22. Microdata Analysis (Graduate), Graduate School of Economics, Kobe University, October 2019–February 2020 (in Japanese)
 23. Microdata Analysis II (Undergraduate), Faculty of Economics, Kobe University, October 2019–January 2020 (in Japanese)
 24. Basic Seminar (Undergraduate), Faculty of Economics, Kobe University, June 2019–July 2019 (in Japanese)
 25. Microdata Analysis I (Undergraduate), Faculty of Economics, Kobe University, April 2019–July 2019 (in Japanese)
 26. Economics Readings in English (Undergraduate), Faculty of Economics, Kobe University, April 2019–July 2019 (in Japanese)
 27. 1st-year Students Seminar (Undergraduate), Faculty of Economics, Kobe University, April 2019–May 2019 (in Japanese)
 28. Microdata Analysis (Graduate), Graduate School of Economics, Kobe University, October 2018–February 2019 (in Japanese)
 29. Microdata Analysis II (Undergraduate), Faculty of Economics, Kobe University, October 2018–February 2019 (in Japanese)
 30. Exercises in Intermediate Statistics (Undergraduate), Faculty of Economics, Kobe University, June 2018–July 2018 (in Japanese)
 31. Economics A (Undergraduate), Institution for Promotion of Higher Education, Kobe University, June 2018–August 2018 (in Japanese)
 32. Intermediate Microeconomics II (Undergraduate), Faculty of Economics, Kobe University, June 2018–August 2018 (in Japanese)
 33. Microdata Analysis I (Undergraduate), Faculty of Economics, Kobe University, April 2018–July 2018 (in Japanese)
 34. Intermediate Microeconomics I (Undergraduate), Faculty of Economics, Kobe University, April 2018–June 2018 (in Japanese)
- Part-time Instructor
 1. Microeconomics (Undergraduate), Faculty of Business Administration, Kindai University, September 2023–February 2024 (in Japanese)
 2. Microeconomics (Undergraduate), Faculty of Business Administration, Kindai University, September 2022–January 2023 (in Japanese)
 3. Microeconomics (Undergraduate), Faculty of Business Administration, Kindai University, September 2021–January 2022 (in Japanese)
 4. Introduction to Mathematics for Economics (Master's Program), Graduate School of Economics, Kobe University, March 2016 (in Japanese)
 - Senior Teaching Assistant
 1. Seminar of Basic Statistical Analysis (Master's Program), Graduate School of Economics, Kobe University, December 2016–February 2017 (in Japanese)

- Teaching Assistant

1. Introduction to Economics (Undergraduate), Faculty of Economics, Kobe University, April 2017–June 2017 (in Japanese)
2. Introduction to Economics (Undergraduate), Faculty of Economics, Kobe University, April 2016–June 2016 (in Japanese)
3. Applied Econometrics (Master's Program), Graduate School of Economics, Kobe University, October 2015–January 2016 (in Japanese)
4. Introduction to Panel Data Analysis (Master's Program), Graduate School of Economics, Kobe University, August 2015 (in Japanese)
5. Microeconomic Analysis (Master's Program), Graduate School of Economics, Kobe University, April 2015–July 2015 (in Japanese)

Invited Speaker at Senior High School

1. Hyogo Prefectural Akashi Kita Senior High School, July 2019 (in Japanese)
2. Hyogo Prefectural Ono Senior High School, June 2018 (in Japanese)

Awards

1. Academic Score Award, Kobe University, June 2014
2. Academic Score Award, Osaka Prefecture University, March 2013
3. Graduation Thesis Award, Osaka Prefecture University, March 2013

Research Grant

1. JSPS KAKENHI, Grant-in-Aid for Early-Career Scientists, Grant Number JP20K13483, "Empirical Studies on Drainage System and Cost in Sewerage Industry," Japan Society for the Promotion of Science, April 2020–March 2022
2. Research Project in the Japan Research Center for Transport Policy, Grant-in-Aid for Young Scientists, "Long-run Impact of Track Improvements on Railroad Productivity," the Japan Research Center for Transport Policy, April 2019–March 2020
3. JSPS KAKENHI, Grant-in-Aid for JSPS Fellows, Grant Number JP16J06356, "Empirical Studies and Econometric Model Development on Service Quality and Efficiency of Railroad Industry," Japan Society for the Promotion of Science, April 2016–March 2018

Participation in Research Project

1. Research Project in the Japan Research Center for Transport Policy, Grant-in-Aid for Autonomous Research, "Investigation Research on Regional Economies and Public-Private Partnerships and Problems of Public Infrastructure and Public Investment in the Region in the Post COVID-19 Society," the Japan Research Center for Transport Policy, April 2024–March 2025 (Scheduled)
 - Research Representative: Professor Tomomi Miyazaki (Kobe University)
2. JSPS KAKENHI, Fund for the Promotion of Joint International Research (International Collaborative Research), Grant Number JP23KK0031, "Empirical Study on Sustainable Water and Wastewater Services under Accelerated Population Decline," Japan Society for the Promotion of Science, September 2023–March 2027 (Scheduled)
 - Research Representative: Professor Tomoyasu Tanaka (Kindai University)
3. Research Project in the Japan Research Center for Transport Policy, Grant-in-Aid for Autonomous Research, "Investigation Research on Regional Economies and Public-Private Partnerships in the Post COVID-19 Society," the Japan Research Center for Transport Policy, April 2023–March 2024
 - Research Representative: Professor Tomomi Miyazaki (Kobe University)
4. JSPS KAKENHI, Grant-in-Aid for Scientific Research (C), Grant Number JP21K01473, "Empirical Studies on the Optimal Industry Structure in the Japanese Water and Sewerage Industry," Japan Society for the Promotion of Science, April 2021–March 2024
 - Research Representative: Professor Takuya Urakami (Kindai University)
5. Gesuido Academic Incubation to Advanced (GAIA) Project, "Productivity and Efficiency Evaluation on Wide Area Consolidation, Sharing of Facilities, and Public Private Partnership in Japanese Sewerage Industry," Ministry of Land, Infrastructure, Transport and Tourism, September 2018–February 2021
 - Research Representative: Professor Takuya Urakami (Kindai University)

Member of Academic Associations

1. Japanese Economic Association, May 2015–Present
2. Applied Regional Science Conference, November 2015–Present
3. CIRIEC-Japan, January 2016–Present
4. The Econometric Society, January 2017–Present
5. The Japan Society of Public Utility Economics, April 2018–Present

6. Japan Economic Policy Association, May 2018–Present
7. The Japan Society of Transportation Economics, May 2020–Present

Referee Experience

1. Fisheries Science
2. Regional Science, Policy and Practice
3. The International Journal of Economic Policy Studies

Conference Committee Experience

1. The Managing Committee of the 20th International Conference of the Japan Economic Policy Association

Research Interest

1. Transportation Economics
2. Industrial Organization
3. Applied Econometrics

Research

Doctoral Dissertation

1. "Empirical Studies on Efficiency, Economies of Density, and Productivity of Railroad Companies in Japan." Submitted in December 2017.
 - Advisor: Professor Taiji Hagiwara
 - Committee Members: Professor Takashi Yanagawa, Professor Akio Namba

Book

1. The Japan Society of Public Utility Economics Kansai Young Researchers Association eds. (2023) *Restructuring of Public Utility Industries*, ch.4. "Measures for Survival and Safety in Railroad Industry," pp. 35–42, Kwansai Gakuin University Press (in Japanese).

Accepted Manuscripts with Peer Review

1. Kitamura, Tomohiro. (2020) "Long-run Impact of Track Improvements on Railroad Track Maintenance Cost: Empirical Analysis Using Distributed Lag Model," *International Public Economy Studies* 31, 54–65.
2. Kitamura, Tomohiro. (2018) "Effect of Passengers' Types on Railroad Efficiency: Distance Function Approach," *International Public Economy Studies* 29, 97–105.

Accepted Manuscripts without Peer Review

1. Kitamura, Tomohiro. (2023a) "Estimating Production Function of Railroad Industry with Accounting for Simultaneity," *Doshisha Shogaku (the Doshisha Business Review)* 74(4, 5), 41–52 (in Japanese).
2. Kitamura, Tomohiro. (2023b) "Efficiency Evaluation of Sewerage Industry Considering Differences in Sewage Removal Types: Metafrontier Analysis by Adopting Panel Data," *Doshisha Shogaku (the Doshisha Business Review)* 74(6), 91–105 (in Japanese).
3. Kitamura, Tomohiro. (2023c) "Problems of Survival and Abolition of Railroad Industry and its Measures in Japan," *Doshisha Shogaku (the Doshisha Business Review)* 75(3), 121–131 (in Japanese).
4. Kitamura, Tomohiro. (2020) "Metafrontier Analysis of Sewerage Industry in Japan," *The Kokumin-Keizai Zasshi (Journal of Economics and Business Administration)*, 222(4), 59–72 (in Japanese).

5. Kitamura, Tomohiro. (2019) "Productivity Analysis of Vertical Integrated Management of Water and Sewerage Industries in Japan," *International Public Economy Studies* 30, 67–77.

Discussion Papers

1. Kitamura, Tomohiro. (2020) "Diversification Economies in Water and Sewerage Industry," Discussion Papers 2005, Graduate School of Economics, Kobe University.
2. Kitamura, Tomohiro. (2018) "Long-run Impact of Track Improvements on Railroad Productivity," Discussion Papers 1825, Graduate School of Economics, Kobe University.

Working Papers

1. Urakami, Takuya, Tomoyasu Tanaka, Takayoshi Nakaoka, and Tomohiro Kitamura. (2020) "GAIA Project An Empirical Study about the Measurement of Productivity and Efficiency Concerning Wide-Area Consolidation and Public-Private Partnership of the Japanese Sewerage Utilities: Primary Results of Questionnaire Survey," Working Paper No. 2020-01, Faculty of Business Administration, Kindai University. (in Japanese).
2. Urakami, Takuya, Tomoyasu Tanaka, Takayoshi Nakaoka, and Tomohiro Kitamura. (2019) "Wide Area Consolidation and Vertical Integration of the Japanese Sewerage Industry: an Initial Analysis," Working Paper No. 2019-04, Faculty of Business Administration, Kindai University.

Departmental Bulletin Paper

1. Kitamura, Tomohiro. (2019) "From Obtaining Data to Econometric Analysis," *For Learning Economics and Business Administration*, Kobe University Economics and Business Administration Association, Spring Semester of FY2019, 19–27 (in Japanese).

Unpublished Manuscripts

1. Ooka, Kazuma, and Tomohiro Kitamura. "Empirical Analysis of Efficiency in Local Government Finances: Focusing on Hiring Non-regular Employees," Submitted to *Journal of Economic Policy Studies* (in Japanese).
2. Kitamura, Tomohiro. "A Comparison of Marginal Cost and Fare of Regional Railroad Companies in Japan: A Hedonic Cost Function Approach," Preparing revision and Resubmission to *Journal of Transport Economics and Policy*.

3. Kitamura, Tomohiro. "The Effect of Capital Subsidies on Rail Efficiency: Empirical Analysis Using Stochastic Frontier with Endogeneity and Propensity Score."

Presentation in English at International Conferences with Peer Review

1. North American Productivity Workshop 2023, "A Comparison of Marginal Cost and Fare of Regional Railroad Companies in Japan: A Hedonic Cost Function Approach," Oral, the Miami Herbert Business School, University of Miami, Miami, the United States, June 2023.
2. The 10th Asian Conference in Regional Science, "Long-run Impact of Track Improvements on Railroad Track Maintenance Cost: Distributed Lag Model Approach," Oral, University of Tsukuba, Tsukuba, Japan, October 2020 (Web meeting).
3. The 11th (virtual) North American Productivity Workshop, "Economies of Diversification in Water Supply and Sewerage Treatment: Distance Function Approach," Oral, the Miami Herbert Business School, University of Miami, Miami, the United States, June 2020 (Web meeting).
4. The 59th Congress of the European Regional Science Association, "Difference in Productivity between Water-Sewerage Integrated Systems and Separated Systems: Evidence from Japan," Oral, the University of Lyon, Lyon, France, August 2019.
5. The 16th European Workshop on Efficiency and Productivity Analysis, "Difference in Productivity between Water-Sewerage Integrated Systems and Separated Systems: Evidence from Japan," Oral, Senate House, London, the United Kingdom, June 2019.
6. The 9th Asian Conference in Regional Science, "Difference in Productivity between Water-Sewerage Integrated Systems and Separated Systems: Evidence from Japan," Oral, Shanghai University, Shanghai, China, April 2019.
7. The 16th International Conference of the Japan Economic Policy Association, "Returns to Density of Regional Railroad Companies in Japan," Oral, Okinawa Jichikaikan Hall, Okinawa, Japan, November 2017.
8. The 7th Asian Seminar in Regional Science, "Returns to Density of Regional Railroad Companies in Japan," Oral, National Taiwan University, Taipei, Taiwan, September 2017.

Presentation in English at International Conferences without Peer Review

1. CPP Brown Bag, "Diversification Economies in Water Supply and Sewage Treatment: Evidence from Japan," Oral, Loughborough University, Loughborough, the United Kingdom, May 2020 (Web meeting).

Presentation in Japanese at Conferences with Peer Review

1. The 70th Meeting of the Japan Society of Public Utility Economics, "Estimating Production Function of Railroad Industry with Accounting for Simultaneity," Oral, Kobe University, Kobe, Japan, February 2021 (Web meeting).
2. The 34th Annual Meeting of CIRIEC-Japan, "Long-run Impact of Track Improvements on Railroad Track Maintenance Cost: Empirical Analysis Using Distributed Lag Model," Oral, Takasaki City University of Economics, Takasaki, Japan, December 2019.
3. The 69th Meeting of the Japan Society of Public Utility Economics, "Productivity Analysis of Vertical Integration of Water and Sewerage Industries," Oral, Nagoya City University, Nagoya, Japan, June 2019.
4. The 7th Spring Meeting of CIRIEC-Japan, "Productivity Analysis of Vertical Integration of Water and Sewerage Industries," Oral, Tokyo College of Transport Studies, Tokyo, Japan, March 2019.
5. The 6th Spring Meeting of CIRIEC-Japan, "Effect of Passengers' Types on Railroad Efficiency: Distance Function Approach," Oral, Shimane Civic Center, Shimane, Japan, March 2018.
6. The 2016 Spring Meeting of Japanese Economic Association, "The Impact of Track Improvement on Railroad Productivity," Poster, Nagoya University, Nagoya, Japan, June 2016.
7. The 4th Meeting of CIRIEC-Japan, "The Impact of Track Improvement on Railroad Productivity," Oral, Daito Bunka University, Tokyo, Japan, March 2016.
8. The 2015 Spring Meeting of Japanese Economic Association, "The Effect of Capital Subsidies on Rail Efficiency: Empirical Analysis Using Stochastic Frontier with Endogeneity," Poster, Niigata University, Niigata, Japan, May 2015.

Presentation in Japanese at Conferences without Peer Review

1. The Meeting for the Japan Society of Public Utility Economics Kansai Young Researchers Association, "Measures for Survival and Safety in Railroad Industry," Oral, the Kansai Electric Power Company, Osaka, Japan, December 2022.
2. New Teacher Seminar of the Association of Commerce, Doshisha University, "The Impact of Vertical Integrated Management of Water and Sewerage Industries," Oral, Doshisha University, Kyoto, December 2021 (Web meeting).
3. Rokkodai Public Finance Seminar, "Diversification Economies of the Water and Sewerage Industries in Japan" (Joint with David Saal and Takuya Urakami)," Oral, Kobe University, Kobe, September 2021 (Web meeting).
4. The 7th Center for Regional Economic Studies Workshop, "A Comparison of Marginal Cost and Fare of Regional Railroad Companies in Japan: Evaluating Marginal Cost Using Estimates of Hedonic Cost Function," Oral, Saga University, Saga, Japan, March 2021.
5. Workshop on Sewerage, "The Impact of Vertical Integrated Management of Water and Sewerage Industries," Oral, Kindai University, Osaka, Japan, February 2021 (Web meeting).
6. The 592nd Meeting of Economics, Kobe University, "Accounting for Populations Settlement Patterns and Outsourcing in the Estimation of Returns to Scale and Efficiency of Japanese Public Sewer Systems (Joint with David Saal, Takuya Urakami, and Maria Nieswand)," Oral, Kobe University, Kobe, Japan, May 2020 (Web meeting).
7. Kobe Transportation Management Workshop, "Returns to Density of Regional Railroad Companies in Japan: Hedonic Cost Function Approach," Oral, Kobe University, Kobe, Japan, January 2020.
8. The 33rd Annual Meeting of the Applied Regional Science Conference, "Long-run Impact of Track Improvements on Railroad Track Maintenance Cost," Oral, Saga University, Saga, Japan, November 2019.
9. The Meeting for Young Researchers of Kansai Branch of the Japan Society of Public Utility Economics, "Long-run Impact of Track Improvements on Railroad Productivity," Oral, the Kansai Electric Power Company, Osaka, Japan, December 2018.
10. The 25th Kansai Econometrics Meeting in FY2017, "Returns to Density of Regional Railroad Companies in Japan: Hedonic Cost Function Approach," Oral, Kobe University, Kobe, Japan, January 2018.
11. The 30th Annual Meeting of the Applied Regional Science Conference, "Econometric Analysis of Track Improvements and Railroad Cost," Oral, Kobe University, Kobe, Japan, November 2016.

12. Urban Economics Workshop, "Output Endogeneity in Railroad Cost Function," Oral, Kyoto University, Kyoto, Japan, September 2015.
13. The 72nd Applied Microeconomic Theory Workshop, "The Effect of Capital Subsidies on Rail Efficiency: Empirical Analysis Using Stochastic Frontier with Endogeneity and Propensity Score," Oral, Osaka University, Osaka, Japan, May 2015.
14. The 86th Lunchtime Workshop, "The Effect of Capital Subsidies on Rail Efficiency: Empirical Analysis Using Stochastic Frontier with Endogeneity and Propensity Score," Oral, Kyoto University, Kyoto, Japan, May 2015.
15. The 16th Economic Meeting for Young Researchers, "The Effect of Capital Subsidies on Rail Efficiency: Empirical Analysis Using Stochastic Frontier with Endogeneity and Propensity Score," Oral, Osaka University, Osaka, Japan, April 2015.
16. The 22nd Kansai Econometrics Meeting in FY2014, "The Effect of Capital Subsidies on Rail Efficiency: Empirical Analysis Using Stochastic Frontier with Endogeneity," Oral, Osaka University, Osaka, Japan, January 2015.

Discussant at Conference

1. The 38th Annual Meeting of CIRIEC-Japan, "Examination of Possibility of Using Web Surveys in Rural Areas: Compared to Tokyo" by Shin'ichi Hanada, Professional University of Information and Management for Innovation, Tokyo, Japan, December 2023.
2. The 35th Annual Meeting of the Applied Regional Science Conference, "Panel Data Analysis on the Determinants of Possession of Low-emission Energy Vehicles" by Yoshihiro Kameyama, Kanazawa University, Kanazawa, Japan, November 2021 (Web meeting).
3. The 20th International Conference of the Japan Economic Policy Association, "The Impact of Lock-in Effect on Costs in Comprehensive Outsourcing Contract: Empirical Analysis of Japanese Sanitation Businesses" by Eri Nakamura, University of Tokyo, Tokyo, Japan, November 2021 (Web meeting).
4. The 7th Center for Regional Economic Studies Workshop, "Desirable Corporate Revitalization and Restructuring Methods in the Post COVID-19 Economy" by Yuki Yoshida, Saga University, Saga, Japan, March 2021 (in Japanese).
5. The 18th International Conference of the Japan Economic Policy Association, "Population and Human Capital as Key Factors of Economic Growth in Israel" by Magdalena Osinska, Chuo University, Tokyo, Japan, November 2019.
6. The 9th Asian Conference in Regional Science, "Does Firm Turnover Benefit or Hurt Industry Productivity?" by Xiaoying Qian, Shanghai University, Shanghai, China, April 2019.

7. The 17th International Conference of the Japan Economic Policy Association, "Productivity Changes in the Vietnamese Manufacturing Sector through the Period of WTO Participation," by Tadashi Sonoda, Keio University, Fujisawa, Japan, October 2018.

Chair at Conference

1. North American Productivity Workshop 2023, "Regulation, Marginal Cost and Catch-Up," the Miami Herbert Business School, University of Miami, Miami, the United States, June 2023.
2. The 11th (virtual) North American Productivity Workshop, "Applications IV," the Miami Herbert Business School, University of Miami, Miami, the United States, June 2020 (Web meeting).
3. The 16th European Workshop on Efficiency and Productivity Analysis, "TH-D-7: Applications 7," Senate House, London, the United Kingdom, June 2019.
4. The 9th Asian Conference in Regional Science, "Session 7: Regional Development I," Shanghai University, Shanghai, China, April 2019.

Others

1. "Report on Productivity and Efficiency Evaluation on Wide Area Consolidation, Sharing of Facilities, and Public Private Partnership in Japanese Sewerage Industry," (with Takuya Urakami, Tomoyasu Tanaka, and Takayoshi Nakaoka), Joint Research Group of Productivity and Efficiency Evaluation on Wide Area Consolidation, Sharing of Facilities, and Public Private Partnership in Japanese Sewerage Industry, February 2021 (in Japanese).
2. "Long-run Impact of Track Improvements on Railroad Productivity," *Publications of the Japan Research Center for Transport Policy A-781*, Project of Long-run Impact of Track Improvements on Railroad Productivity, the Japan Research Center for Transport Policy, June 2020 (in Japanese).
3. "Report on Productivity and Efficiency Evaluation on Wide Area Consolidation, Sharing of Facilities, and Public Private Partnership in Japanese Sewerage Industry," (with Takuya Urakami, Tomoyasu Tanaka, and Takayoshi Nakaoka), Joint Research Group of Productivity and Efficiency Evaluation on Wide Area Consolidation, Sharing of Facilities, and Public Private Partnership in Japanese Sewerage Industry, February 2020 (in Japanese).
4. "Report on Productivity and Efficiency Evaluation on Wide Area Consolidation, Sharing of Facilities, and Public Private Partnership in Japanese Sewerage Industry," (with Takuya Urakami, Tomoyasu Tanaka, and Takayoshi Nakaoka), Joint Research Group of Productivity and Efficiency Evaluation on Wide Area

Consolidation, Sharing of Facilities, and Public Private Partnership in Japanese Sewerage Industry, February 2019 (in Japanese).

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