Zhiyang SHEN

Ph.D in Economics

Associate Professor, Economics

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EDUCATION

2023 HDR, Economy, Economics, University of Lille, France

2016 Ph.D in Economics, University of Lille 1, France

2013 Master in Public Economics and Public Finance, University of Rennes, France

2012 Master of Business Administration, Rouen Business School, France

RESEARCH INTERESTS

Banking Performance Evaluation, Efficiency and Productivity Analysis, Environmental and Energy Economics

PROFESSIONAL EXPERIENCE

ACADEMIC:

2022 - Present Associate Professor, IÉSEG School of Management, France

2020 - 2022 Assistant Professor, Beijing Institute of Technology, Beijing, China

2016 - 2017 Postdoctoral Researcher, IÉSEG School of Management, France

2013 - 2016 Teaching and Research Assistant, IÉSEG School of Management, France

PROFESSIONAL:

2017 - 2020 Economic Analyst and Manager, The Export-Import Bank of China, Beijing, China

2009 - 2011 Civil Servant, Municipal Bureau of Finance, Bengbu, China

COURSES TAUGHT

- Environmental and energy economics, Grande ecole (bachelor cycle)
- Statistics basics, Executive mba
- Imperfectly competitive markets, Grande ecole (bachelor cycle)

- Statistics for business, Bachelor in international business

- Tools for microeconomics analysis, Grande ecole (bachelor cycle)

INTELLECTUAL CONTRIBUTIONS

Papers in refereed journals

Published

Baležentis T., Kerstens K., Shen Z., (2024), Economic and Environmental Decomposition of Luenberger-Hicks-Moorsteen Total Factor Productivity Indicator: Empirical Analysis of Chinese Textile Firms with a Focus on Reporting Infeasibilities and Questioning Convexity, *IEEE Transactions on Engineering Management*, 71(2024), pp. 2772-2785

Cheng W., Ouyang X., Yu A., Shen Z., Vardanyan M., (2024), Subjective Perceptions versus Objective Outcomes: Assessing the Impact of Smart City Pilots on Environmental Quality in China, *Technological Forecasting and Social Change*, 209(2024), pp. 123799

Deng H., Lyu B., Shen Z., Vardanyan M., (2024), Research and development expenditures, technology spillovers, and green productivity in agriculture: an empirical analysis, *Post-Communist Economies*, 36(3), pp. 360-381

Dong K., Jiang Q., Liu Y., Shen Z., Vardanyan M., (2024), Is energy aid allocated fairly? A global energy vulnerability perspective, *World Development*, 173(n/a), pp. 106409

Du J., Gu H., Shen Z., Song M., Vardanyan M., (2024), Assessing Regional Energy Security Characteristics: Evidence from Chinese Province-Level Data, *Energy Economics*, 140(2024), pp. 107964

Niu Y., Boussemart J.-P., Shen Z., Vardanyan M., (2024), Performance evaluation using multi-stage production frameworks: assessing the tradeoffs among the economic, environmental, and social well-being, *European Journal of Operational Research*, 318(3), pp. 1000-1013

Shen Z., Hong T., Blancard S., Bai K., (2024), Digital financial inclusion and green growth: analysis of Chinese agriculture, *Applied Economics*, 56(46), pp. 5555-5573

Shen Z., Kerstens K., Valdmanis V., Wang S., (2024), Evaluation and Optimization of Hospital System in Chinese Provinces: Does Mortality Matter?, *RAIRO - Operations Research*, 58(1), pp. 971-987

Song M., Pan H., Shen Z., Tamayo K., (2024), Assessing the influence of artificial intelligence on the energy efficiency for sustainable ecological products value, *Energy Economics*, 131(2024), pp. 107392

Zhang Z., Du J., Shen Z., El Asraoui H., Song M., (2024), Effects of modern agricultural demonstration zones on cropland utilization efficiency: An empirical study based on county pilot, *Journal of Environmental Management*, 349(2024), pp. 119530

An Q., Zhu K., Xiong B., Shen Z., (2023), Carbon resource reallocation with emission quota in carbon emission trading system, *Journal of Environmental Management*, 327(2023), pp. 116837

Cai J., Zheng H., Vardanyan M., Shen Z., (2023), Achieving carbon neutrality through green technological progress: evidence from China, *Energy Policy*, 173(2023), pp. 113397

Chen J., Yu J., Shen Z., Song M., Zhou Z., (2023), Debt Financing and Maintenance Expenditure: Theory and Evidence on Government-Operated Toll Roads in China, *Economic Systems*, 47(1), pp. 101049

Deng H., Bai G., Kerstens K., Shen Z., (2023), Comparing Green Productivity under Convex and Nonconvex Technologies: Which is a Robust Approach Consistent with Energy Structure?, *Managerial and Decision Economics*, 44(8), pp. 4377-4394

Di D., Li G., Shen Z., Song M., Vardanyan M., (2023), Environmental credit constraints and pollution reduction: Evidence from China's blacklisting system for environmental fraud, *Ecological Economics*, 210(2023), pp. 107870

Du J., Shen Z., Song M., Vardanyan M., (2023), The role of green financing in facilitating renewable energy transition in China: perspectives from energy governance, environmental regulation, and market reforms, *Energy Economics*, 120(2023), pp. 106595

Du J., Shen Z., Song M., Zhang L., (2023), Nexus between Digital Transformation and Energy Technology Innovation: An Empirical Test of A-Share Listed Enterprises, *Energy Economics*, 120(2023), pp. 106572

Li L., Shen Z., Song M., Vardanyan M., (2023), Public Expenditure, Green Finance, and Environmental Governance: Evidence From China, *Environmental Modelling and Assessment*, 28(5), pp. 859-873

Qian Y., Yu X., Shen Z., Song M., (2023), Complexity Analysis and Control of Game Behavior of Subjects in Green Building Materials Supply Chain Considering Technology Subsidies, *Expert Systems with Applications*, 214(2023), pp. 119052

Shen Z., Balezentis T., (2023), Devising evidence-based strategies for progress towards zero-carbon energy at the country level: The by-production approach, *Journal of Environmental Management*, 340(2023), pp. 117974

Song M., Pan H., Vardanyan M., Shen Z., (2023), Evaluating the energy efficiency-enhancing potential of the digital economy: Evidence from China, *Journal of Environmental Management*, 344(2023), pp. 118408

Xin Y., Song H., Shen Z., Wang J., (2023), Measurement of the integration level between the digital economy and industry and its impact on energy consumption, *Energy Economics*, 126(2023), pp. 106988

Cai J., Chen Y., Hu R., Wu M., Shen Z., (2022), Discovering the Impact of Farmer Field Schools on the Adoption of Environment-Friendly Technology, *Technological Forecasting and Social Change*, 182(121782), pp. 1-8

Chen B., Xu C., Wu Y., Li Z., Song M., Shen Z., (2022), Spatiotemporal carbon emissions across the spectrum of Chinese cities: Insights from socioeconomic characteristics and ecological capacity, *Journal of Environmental Management*, 306(114510), pp. 1-13

Chen J., Huang S., Shen Z., Song M., Zhu Z., (2022), Impact of sulfur dioxide emissions trading pilot scheme on pollution emissions intensity: A study based on the synthetic control method, *Energy Policy*, 161(112730), pp. 1-11

Han J., Li G., Shen Z., Song M., Zhao X., (2022), Manufacturing transfer and environmental efficiency: Evidence from the spatial agglomeration of manufacturing in China, *Journal of Environmental Management*, 314(115039), pp. 1-12

He R., Baležentis T., Štreimikiene D., Shen Z., (2022), Sustainable Green Growth in Developing Economies: An Empirical Analysis on the Belt and Road Countries, *Journal of Global Information Management*, 30(6), pp. 1-15

Pan X., Song M., Wang Y., Shen Z., Song J., Xie P., Pan X., (2022), Liability accounting of natural resource assets from the perspective of input Slack—An analysis based on the energy resource in 282 prefecture-level cities in China, *Resources Policy*, 78(102867), pp. 1-10

Shen Z., Baležentis T., Streimikis J., (2022), Capacity Utilization and Energy-related GHG Emission in the European Agriculture: A Data Envelopment Analysis Approach, *Journal of Environmental Management*, 318(115517), pp. 1-12

Shen Z., Baležentis T., Vardanyan M., (2022), Evaluating green productivity gains with the exponential by-production technology: An analysis of the Chinese industrial sector, *Environmental Modelling and Assessment*, 27(5), pp. 759-770

Shen Z., Valdmanis V., (2022), Assessing Total Factor Productivity across Africa: An Empirical Investigation, *Journal of Productivity Analysis*, 58(2-3), pp. 239–253

Shen Z., Wang S., Boussemart J.-P., Hao Y., (2022), Digital transition and green growth in Chinese agriculture, *Technological Forecasting and Social Change*, 181(2022), pp. 121742

Shen Z., Wu H., Bai K., Hao Y., (2022), Integrating economic, environmental and societal performance within the productivity measurement, *Technological Forecasting and Social Change*, 176(121463), pp. 1-15

Song M., Xu H., Shen Z., Pan X., (2022), Energy market integration and renewable energy development: Evidence from the European Union countries, *Journal of Environmental Management*, 317(2022), pp. 115464

Wang Z., Song Y., Shen Z., (2022), Global sustainability of carbon shadow pricing: the distance between observed and optimal abatement costs, *Energy Economics*, 110(106038), pp. 1-13

Xu C., Wang B., Chen J., Shen Z., Song M., An J., (2022), Carbon inequality in China: Novel drivers and policy driven scenario analysis, *Energy Policy*, 170(113259), pp. 1-12

Zhu N., Dai X., Baležentis T., Štreimikiene D., Shen Z., (2022), Estimating production gains from international cooperation: Evidence from countries along the Belt and Road, *Economic Change and Restructuring*, 55(-), pp. 715–736

Zhu Q., Chen X., Song M., Li X., Shen Z., (2022), Impacts of renewable electricity standard and Renewable Energy Certificates on renewable energy investments and carbon emissions, *Journal of Environmental Management*, 306(114495), pp. 1-9

Balezentis T., Blancard S., Shen Z., Streimikiene D., (2021), Analysis of Environmental Total Factor Productivity Evolution in European Agricultural Sector, *Decision Sciences*, 52(2), pp. 483-511

Baležentis T., Butkus M., Štreimikiene D., Shen Z., (2021), Exploring the limits for increasing energy efficiency in the residential sector of the European Union: Insights from the rebound effect, *Energy Policy*, 149(112063), pp. 1-10

Kerstens K., Shen Z., (2021), Using COVID-19 Mortality to Select Among Hospital Plant Capacity Models: An Exploratory Empirical Application to Hubei Province, *Technological Forecasting and Social Change*, 166(2021), pp. 120535

Song M., Xie Q., Shen Z., (2021), Impact of green credit on high-efficiency utilization of energy in China considering environmental constraints, *Energy Policy*, 153(112267), pp. 1-10

Yuan Q., Baležentis T., Shen Z., Štreimikiene D., (2021), Economic and Environmental Performance of the Belt and Road Countries under Convex and Nonconvex Production Technologies, *Journal of Asian Economics*, 75(101321), pp. 1-10

Boussemart J.-P., Ferrier G., Leleu H., Shen Z., (2020), An Expanded Decomposition of the Luenberger Productivity Indicator with an Application to the Chinese Healthcare Sector, *Omega*, 91(2020), pp. 102010

Boussemart J.-P., Leleu H., Shen Z., Valdmanis V., (2020), Performance analysis for three pillars of sustainability, *Journal of Productivity Analysis*, 53(3), pp. 305-320

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Song M., Wang J., Zhao J., Baležentis T., Shen Z., (2020), Production and safety efficiency evaluation in Chinese coal mines: accident deaths as undesirable output, *Annals of Operations Research*, 291(-), pp. 827–845

Boussemart J.-P., Leleu H., Shen Z., Vardanyan M., Zhu N., (2019), Decomposing banking performance into economic and credit risk efficiencies, *European Journal of Operational Research*, 277(2), pp. 719-726

Shen Z., Baležentis T., Ferrier G., (2019), Agricultural productivity evolution in China: A generalized decomposition of the Luenberger-Hicks-Moorsteen productivity indicator, *China Economic Review*, 57(101315), pp. 1-19

Kerstens K., Van de Woestyne I., Shen Z., (2018), Comparing Luenberger and Luenberger-Hicks-Moorsteen Productivity Indicators: How Well is Total Factor Productivity Approximated?, *International Journal of Production Economics*, 195(2018), pp. 311-318

Shen Z., Baležentis T., Chen X., Valdmanis V., (2018), Green growth and structural change in Chinese agricultural sector during 1997–2014, *China Economic Review*, 51(-), pp. 83-96

Boussemart J.-P., Leleu H., Shen Z., (2017), Worldwide carbon shadow prices during 1990–2011, *Energy Policy*, 109(2017), pp. 288-296

Shen Z., Boussemart J.-P., Leleu H., (2017), Aggregate green productivity growth in OECD's countries, *International Journal of Production Economics*, 189(2017), pp. 30-39

Boussemart J.-P., Leleu H., Shen Z., (2015), Environmental Growth Convergence among Chinese Regions, *China Economic Review*, 34, pp. 1-18

Forthcoming

Li L., Boussemart J.-P., Shen Z., Vardanyan M., (2025), Assessing the Potential of Digital Technology: An Integrated Measurement of Economic, Environmental, and Social Performance, *Annals of Operations Research*, forthcoming(.), pp. N/A

Shen Z., Yang Y., Kerstens K., Deng H., (2025), Global and Local Technological Changes with Environmental Factors: Analysis of the Agricultural Sector in the Belt and Road Countries, *Environmental Modelling and Assessment*, forthcoming(forthcoming), pp. forthcoming

Shen Z., Kerstens K., Baležentis T., (2023), An Environmental Luenberger-Hicks-Moorsteen Total Factor Productivity Indicator: Empirical Analysis Considering Undesirable Outputs either as Inputs or Outputs, and Attention for Infeasibilities, *Annals of Operations Research*, forthcoming(forthcoming), pp. forthcoming

Deng H., Li H., Pan A., Shen Z., (2022), Decomposition of green agricultural productivity gain under a multiple-frontier framework: An empirical analysis in Sichuan, *Journal of Global Information Management*, 30(6), pp. 1-23

Hao Y., Li Y., Shen Z., (2022), Does carbon emission trading contribute to reducing infectious diseases? Evidence from China, *Growth and Change*, -(-), pp. -

Liu S., Chen X., Shen Z., Baležentis T., (2022), Industrial energy consumption and pollutant emissions: Combined decomposition of relative performance and absolute changes, *Business Strategy and the Environment*, -(-), pp. -

Shen Z., Li J., Vardanyan M., Wang B., (2022), Nonparametric shadow pricing of non-performing loans: a study of the Chinese banking sector, *Annals of Operations Research*, X(X), pp. X

Shen Z., Zhou Y., Bai K., Zhai K., (2022), Potential green gains from the integration of economies: evidence from Mainland, Hong Kong, Macao, and Taiwan in China, *Journal of Global Information Management*, 30(6), pp. 1-21

Shen Z., Vardanyan M., Baležentis T., Wang J., (2021), Analyzing the Tradeoff between the Economic and Environmental Performance: the Case of the Chinese Manufacturing Sector, *IEEE Transactions on Engineering Management*, forthcoming(X), pp. X

Chapters in books

Published

Kerstens K., Kruger J., Shen Z., (2022), Localized Technological Change, in: Antonelli, C.(Eds.), *Elgar Encyclopedia on the Economics of Knowledge and Innovation, 978 1 83910 698 9, Edward Elgar Publishing, Cheltenham, chapter 41, pp. 333-341*

Working papers

Delnava H., Kerstens K., Kuosmanen T., Shen Z., (2024), *Semi-parametric Estimation of Convex and Nonconvex By-Production Technologies*, IESEG Working Paper Series 2024-EQM-02

Baležentis T., Kerstens K., Shen Z., (2017), *An Environmental Luenberger-Hicks-Moorsteen Total Factor Productivity Indicator for OECD Countries*, IESEG Working Paper Series 2017-EQM-02

RESEARCH ACTIVITIES

Supervision of Ph.D. Thesis:

2024 Co-director, Essays on Modelling of Undesirable Output and Environmental Assessment, University of Paris-Saclay

2024 Director, Essays on the Tradeoffs among the Economic, Environmental, and Social Pillars of Sustainability, University of Lille

2023 Director, Essays on Agricultural Resource Misallocation and Productivity Analysis, University of Lille

2023 Director, Essays on Agricultural Performance and Pesticide Usage, University of Lille