

Liang-Cheng Zhang

張良丞

CURRENT POSITION Research Fellow, [Australian Council for Educational Research, Australia](#) E-mail: liang-cheng.zhang@acer.org
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EDUCATION

Ph.D. in Economics, 2013 to 2017

Griffith University, Nathan, Queensland, Australia

- Thesis Title: *Economies of scale and scope in higher education*
- Advisor: [Professor Andrew C. Worthington](#) and [Associate Professor Helen Higgs](#)
- Confirmation Examiner: [Professor Fabrizio Carmignani](#)

Graduate Diploma in Economics, 2012 to 2013

University of Queensland, St Lucia, Queensland, Australia

Ph.D. Researcher in School Finance, 2008 to 2011

National Taiwan Normal University, Taipei, Taiwan

- Advisor: [Professor Tian-Ming Sheu](#)

Master of Education, 2005 to 2008

Taipei Municipal University of Education (now University of Taipei), Taipei, Taiwan

- Thesis Title: *A Study on the Educational Expenditure Adequacy among Elementary Schools in Taipei City – Cost Function Approach*
- Advisor: [Professor Bao-Jinn Wang](#)

Bachelor of Education, 2001 to 2005

National Taiwan Normal University, Taipei, Taiwan

CONSULTING

- Consultant / independent contractor for individuals, companies, and non-profit organizations
- Expertise: R programming, Superannuation simulation, simulation methods (bootstrapping and Monte Carlo), financial data analysis, longitudinal/panel data analysis, Cost estimation, school finance

RECENT COMPLETED CONSULTING PROJECTS (From Oct. 2015)

For Companies

[1] R programming for superannuation/pension simulations

[2] Building an interactive web application for text predictions using R Shiny

For Individuals

[1] R programming for Portfolio Optimization with Walk-Forward Process

COMPUTERS SKILLS

OS: Microsoft Windows

Computer Language: R, Matlab, SPSS, Bayesian inference Using Gibbs Sampling ([BUGS](#)), STATA, Eviews

HONORS AND AWARDS

- 2013-2016 GU International Postgraduate Research Scholarship
- 2013-2016 Griffith University Postgrad Research Scholarship
- 2012 NTNU Study-Abroad Scholarship
- 2012 Ministry of Education Scholarships for Excellent Students to Study Abroad
- 2012 Ministry of Education Study-Abroad Scholarship
- 2010 AEFA 35th Annual Conference Roe L. Johns Travel Grants
- 2008 Ku Fu-Ming Professor Foundation Excellent Thesis Award
- NTNU Excellent Student Scholarship

PUBLICATIONS

Software

- [1] **Zhang, L. -C.** (2016). Rcess: An R package for calculating estimates of costs and economies of scale and scope. Github: <https://github.com/LiangCZhang/Rcess>

Journal Papers

- [1] **Zhang, L. -C., & Worthington, A. C.** (in press). Explaining estimated economies of scale and scope in higher education: A meta-regression analysis. *Research in Higher Education* (SSCI) doi: [10.1007/s11162-017-9460-4](https://doi.org/10.1007/s11162-017-9460-4)
- [2] **Zhang, L. -C., Worthington, A. C. & Hu, M.** (2017). Cost economies in the provision of higher education for international students: Australian evidence. *Higher Education*, 74(4), 717–734. (A ranked in ABDC) (SSCI) doi: [10.1007/s10734-016-0078-9](https://doi.org/10.1007/s10734-016-0078-9)
- [3] **Zhang, L. -C., & Worthington, A. C.** (2017). Scale and scope economies of distance education in Australian universities. *Studies in Higher Education*, 42(9), 1785-1799. (A* ranked in ERA; A ranked in ABDC) (SSCI) doi: [10.1080/03075079.2015.1126817](https://doi.org/10.1080/03075079.2015.1126817)
- [4] Syu, J. -J., & **Zhang, L. -C.** (2017). Impact of differential item functioning on the personal epistemology beliefs scale for senior high school students, *European Journal of Psychological Assessment*, 33(1), 22-29. doi: [10.1027/1015-5759/a000268](https://doi.org/10.1027/1015-5759/a000268) (SSCI)
- [5] **Zhang, L. -C., Sheu, T. -M. & Wu, J. H. -C.,** (2016). Estimating adequate funding to meet performance standards for Junior high school students: Comparisons between Rural and Non-rural school in Taiwan. *Journal of Research in Education Science*, 61 (3), 43-67. (TSSCI) [In Chinese] doi: [10.6209/JORIES.2016.61\(3\).02](https://doi.org/10.6209/JORIES.2016.61(3).02)
- [6] Chu, Y. -A., & **Zhang, L. -C.** (2015). Are our special education students ready for work? An investigation of the teaching of job-related social skills in Northern Taiwan. *International Journal of Disability, Development, and Education*, 62(6), 628-643. (SSCI). doi: [10.1080/1034912X.2015.1077936](https://doi.org/10.1080/1034912X.2015.1077936)
- [7] **Zhang, L. -C., & Sheu, T. -M.** (2013). Effective investment strategies on mathematics performance in rural areas. *Quality & Quantity*, 47(5), 2999-3017. (SSCI) doi: [10.1007/s11135-012-9752-x](https://doi.org/10.1007/s11135-012-9752-x)
- [8] **Zhang, L. -C., Wang, B. -J., & Sheu, T. -M.** (2010). Evaluating the adequacy of meeting student performance standards in the Taipei city public elementary schools. *Journal of Education and Psychology*, 33(4), 109-136 (TSSCI) [In Chinese]
- [9] **Zhang, L. -C., & Wang, B. -J.** (2009). The review of the higher education evaluation system in the Netherlands. *Journal of Educational Administration and Evaluation*, 7, 71-95. [In Chinese]

Book Chapter

- [1] **Zhang, L. -C. & Worthington, A. C.** (2017). The impact of scale and scope on global university rankings: What we know and what we need to learn. In K. Downing & F. A.

- Ganotice (Eds.), *World university rankings and the future of higher education* (pp. 140-160). IGI Global: Hershey, PA. doi: [10.4018/978-1-5225-0819-9.ch008](https://doi.org/10.4018/978-1-5225-0819-9.ch008)
- [2] **Zhang, L. -C.** (2015). Equity funding in public schools. In F. F. Wherry & J. B. Schor (Eds.), *The SAGE encyclopedia of economics and society*. (Vol. 4, pp. 633-634). Thousand Oaks, CA: SAGE Publications. doi: [10.4135/9781452206905.n252](https://doi.org/10.4135/9781452206905.n252)

Conference Proceedings

- [1] **Zhang, L. -C.**, Syu, J. -J. & Worthington, A.C. (2015). Using a Bayesian approach to evaluate the accuracy of economies of scope: Examples from Australian public universities. In Weber, T., McPhee, M.J. and Anderssen, R.S. (eds.), MODSIM2015, 21st International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand, December 2015, pp. 973-979. ISBN: 978-0-9872143-5-5. <http://www.mssanz.org.au/modsim2015/E1/zhang.pdf>

Conference Papers

- [1] **Zhang, L. -C.** (2017, November). *Economies of scale and scope in higher education*. Invited Symposium, National Academy for Educational Research, Taiwan.
- [2] **Zhang, L. -C.** (2015, October). *Inferring (dis)economies of scope with a proper procedure: Using an interval plot as an alternative solution*. Griffith PhD Symposium in Economics 2015, Griffith University, Australia.
- [3] **Zhang, L. -C.**, & Worthington, A.C. (2015, July). *Evaluating the accuracy of scope economies: Comparisons among delta method, bootstrap, and Bayesian approach*. PhD Colloquium (Econometric Techniques), 2015 Australian Conference of Economists, QUT Gardens Point Brisbane, Australia.
- [4] **Zhang, L. -C.**, & Syu, J. -J. (2014, November.). Estimating scale and scope economies of Australian universities under a Bayesian framework. Poster session presented at Bayes on the Beach 2014 conference, Surfers Paradise, Queensland.
- [5] **Zhang, L. -C.**, Syu, J. -J., & Worthington, A.C. (2014, July). Scope economies in Australian distance education. In K. Lovell, (Chair), C. O'Donnell, (Discussant), Early Career Researcher Section, 2014 Asia-Pacific Productivity Conference, University of Queensland, St Lucia, Australia.
- [6] **Zhang, L. -C.**, Syu, J. -J., & Sheu, T. -M. (2012, July). The Moderation of School Academic Optimism Effect on Student Achievement: DIF and Multi-group SEM Analysis. Symposium will be hold at the 8th Conference of the International Test Commission, Amsterdam, Netherlands.
- [7] Sheu, T. -M., & **Zhang, L. -C.** (2010, November). The Impact of Educational Resources on Junior High School Student Achievement in Taiwan Rural and Non-rural Area. Poster session presented at the annual Australian Association for Research in Education conference, Melbourne.
- [8] **Zhang, L. -C.** (2010, March). Measuring Elementary School Efficiency in Taipei, Taiwan: Two-Stage Data Envelopment Analysis. In J. Imazeki (Chair), School Efficiency. Symposium conducted at the meeting of the 35th annual conference of the American Education Finance Association, Richmond, VA.
- [9] **Zhang, L. -C.**, Wang, B. -J., & Sheu, T. M. (2009, December). Adequate funding for elementary schools-Cost function approach. In J. L. Gao (Chair), Topic 5. Symposium conducted at the meeting of annual conference of Education of Economics in China, Guangzhou University, China.
- [10] **Zhang, L. -C.** (2009, November). The Aftereffect of Higher Education Expansion Policy - Over-education, evidence from HLM analysis. In H. L. Pan, (Chair), Dialogue between

Educational Research and Educational Policy. Symposium conducted at the meeting of international conference, National Taiwan Normal University, Taiwan.

Newspaper Articles

- [1] **Zhang, L. -C.** (2016, November 4). Comparing pension systems in Australia and Taiwan (part 2), *The Epic Times*, p. B4. [In Chinese]
- [2] **Zhang, L. -C.** (2016, October 28). Comparing pension systems in Australia and Taiwan (part 1), *The Epic Times*, p. B4. [In Chinese]

RESEARCH EXPERIENCE

Data Scientist (independent contractor)

- [1] Organization: [Drew, Walk & Co.](#)
 - Project: R programming in Finance/Superannuation.
 - Period: Oct 2015 to Present
 - Role: Provide the service of documentation, quality assurance, and coding in R.
- [2] Organization: [Hsin Yi Foundation](#)
 - Project: The survey of mother's satisfaction
 - Period: Summer 2009
 - Role: Help their staff analyze their questionnaires.
- [3] Organization: [Center for Educational Research and Evaluation](#)
 - Project: Taiwan integrated postsecondary education database
 - Period: 2006 - 2007
 - Role: Analyze the data of Taiwan integrated postsecondary education.

Research Assistant

- [1] Project: Quantile dependence in the stock and energy market returns
 - Supervisor: [Dr. Jen Je Su](#)
 - Period: Oct. 2016 to Present
 - Role: Investigated the quantile dependence in the stock and energy market returns
- [2] Project: Teacher salary in public primary and secondary schools
 - Supervisor: [Professor Tian-Ming Sheu](#)
 - Period: Jan. 2012 to Mar. 2012
 - Role: Collected official teacher salary data from OECD countries and compared their difference.
- [3] Project: Database development for the ed-ecology analysis of the rural schools in Taiwan
 - Supervisor: [Professor Hsiao-Lan Chen](#)
 - Period: 2009 to 2011
 - Role: Designed financial questionnaires and prepared the meetings with school accountants.
- [4] Project: Impact of educational resource on junior high school student achievement in Taiwan rural and non-rural area
 - Supervisor: [Professor Tian-Ming Sheu](#)
 - Period: 2009 to 2011
 - Role: Designed resource-investment model, questionnaires, and analysed the data.
- [5] Project: Impact of low birth rate trend on education funding
 - Supervisor: [Professor Tian-Ming Sheu](#) and Associate Research Fellow Chi-Yuan Tsai
 - Period: July 2009 to Sep. 2009

- Role: Forecasted long-term (2009 - 2016) education funding under the condition of low birth rate trend and economics in Taiwan.
- [6] Project: Development of school finance database and website and its related issues
- Supervisor: [Professor Tian-Ming Sheu](#)
 - Period: 2008 to 2010
 - Role: Collected school finance data from Taiwan and OECD countries
- [7] Project: From Bologna to Borgen: The development and change of European higher education area
- Supervisor: [Professor Bao-Jinn Wang](#)
 - Period: 2006 to 2007
 - Role: Collected higher education data in European higher education area and compared the difference.

TEACHING EXPERIENCE

Lecturer at National Taipei University of Education
0146 Educational Statistics - Fall 2008 (One semester)

Lecturer in Workshop

- [1] R in Finance
- Time: 13 May 2016
 - Audience: Higher Degree by Research students in Griffith University, Australia
- [2] Hierarchical linear model
- Time: 13 January 2011
 - Audience: Doctoral students in Taipei Municipal University of Education.
- [3] The fun of educational finance
- Time: 05 November 2010
 - Audience: Undergraduate students in National Taiwan Normal University.
- [4] Academic writing
- Time: 01 November 2010
 - Audience: Postgraduate students in Taipei Municipal University of Education.

ACADEMIC SERVICE

Conference Discussant

- [1] 2016 The FFP Monthly Research Seminar Series in Griffith University Nathan campus, Australia. *Paper*: Challenges and opportunities for international students in Australia: A case study of Chinese students studying in Australia, By Ada Chen.
- [2] 2015 Australian Conference of Economists in QUT Gardens Point campus, Australia. *Paper*: Dynamic optimisation on infinite dimensions: existence of solutions, Euler and transversality conditions, By Akshay Shanker. *Session*: PhD Colloquium (Econometric Techniques).

OTHER WORKING EXPERIENCE

- [1] Psychological Counsellor in Taiwan Military Service
- Period: 2011 - 2012
 - Role: Gave soldiers physiological tests, and analysed the data.
 - Award: 2011 Excellent Psychological Counsellor Award
- [2] Web-designer and Discussion Forum administrator in Graduate School of Educational Administration and Evaluation
- Period: 2005 - 2008
 - Role: Maintained Web Pages and Discussion Forum