

References

- Acemoglu, Daron and David Autor (2012), What does human capital do? A review of Goldin and Katz's *The Race between Education and Technology*. *Journal of Economic Literature*, 50(2), 426–463.
- Acemoglu, Daron U., Akcigit, D. Hanley, and W. Kerr (2006), Transition to clean technology. *Journal of Political Economy*, 124(1), 52–104.
- Aghion, P., M. Dewatripont, C. Hoxby, A. Mas-Colell, and A. Sapir (2010), The governance and performance of universities: evidence from Europe and the US. *Economic Policy*, 25(61), 7–59.
- Ahn, Seung-Gu (2009a), *An Analysis of Performance and Success Factors of National R&D Project: Focused on the Next Generation Growth Engine Program*. Korea Institute of S&T Evaluation and Planning [KISTEP]. (in Korean)
- Ahn, Seung-Gu (2009b), *Progress and Analysis of the Next Generation Growth Engine Program*. Korea Institute of S&T Evaluation and Planning [KISTEP]. (in Korean)
- American Educational Research Association [AERA], American Psychological Association [APA], and National Council on Measurement in Education [NCME] (2014), *Standards for Educational and Psychological Testing*. Washington, DC: AERA.
- Ashton, D., F. Green, J. Sung, and D. James (2002), The evolution of education and training strategies in Singapore, Taiwan and S. Korea: a development model of skill formation. *Journal of Education and Work*, 15(1), 5–30.
- Azoulay, P., J.S. Graff Zivin, and G. Manso (2011), Incentives and creativity: evidence from the academic life sciences. *RAND Journal of Economics*, 42(3), 527–554.
- Barro, R.J. and Jong-Wha Lee (2013), A new data set of educational attainment in the world, 1950–2010. *Journal of Development Economics*, 104, 184–198. <http://www.barrolee.com/data/full1.htm>.
- Becker, Gary S. (1993), *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, 3rd edition. Chicago, IL: University of Chicago Press.
- Becker, Gary S., Kevin M. Murphy, and Robert Tamura (1990), Human

- capital, fertility and economic growth. *Journal of Political Economy*, 98 (5, Part 2), S12–S37.
- Black, Dan A. and Jeffrey A. Smith (2006), Estimating the returns to college quality with multiple proxies for quality. *Journal of Labor Economics*, 24(3), 701–728.
- Blanchard, Olivier J. and Mark W. Watson (1982), Bubbles, rational expectations and financial markets, in Paul Wachtel (ed.), *Crises in the Economic and Financial Structure*. Lexington, MA: D.C. Heath and Company, 295–316.
- Bray, Mark (2006), Private supplementary tutoring: comparative perspectives on patterns and implications. *A Journal of Comparative Education*, 36(4), 515–530.
- Brewer, Dominic J., Eric Raymond Eide, and Ronald G. Ehrenberg (1999), Does it pay to attend an elite private college? Cross-cohort evidence on the effects of college type on earnings. *Journal of Human Resources*, 104–123.
- Cha, D.W., H.C. Kim, and B. H. Son (2007), *Policies and Implications on Support for High-Risk and Innovative Research*. KISTEP Issue Paper, 10. Korea Institute of S&T Evaluation and Planning [KISTEP]. (in Korean)
- Cheng, K. (1998), Can education values be borrowed? Looking into cultural differences. *Peabody Journal of Education*, 73(2), 11–30.
- Cho, Ga-Won, M. Um, M. Kim, and D. Im (2011), 2010 Doctor survey of career and mobility. *Survey Research*, 2011-3. Science and Technology Policy Institute [STEPI]. (in Korean)
- Cho, Hyun Dae et al. (2003), *An Analysis of the System and Structure of the Korean Government R&D Programs and Policy Recommendations*. STEPI Policy Research 27. (in Korean)
- Cho, Jane Jangeun (2010), *Immigration through Education: The Interwoven History of Korean International Students, U.S. Foreign Assistance, and Korean Nation-state Building* (Doctoral dissertation). University of California, Berkeley.
- Choi, J., B. Kim, J. Lee, and Y. Park (2016), The impact of project-based learning on teacher self-efficacy (May 2016). *KDI School Working Paper No. 16-05*. KDI School of Public Policy and Management.
- Choi, K.N. (2001), Features of vocational high school policy and subject of development. *Science and Technology Policy*, 11(6), 55–66. (in Korean)
- Choi, S.J. (2013), 21c Frontier project management system and governance evaluation: comparisons with large R&D projects. Seminar Presentation Material. (in Korean)
- Choi, S.K., Y.B. Kim, H.G. Ryu, H.J. Kim, and H.S. Lee (2003), *Study on Private Tutoring and Estimation of its Size* (CR2003-19). Korean Educational Development Institute. (in Korean)
- Chung, Sung Chul (2011), Innovation, competitiveness, and growth:

- Korean experiences, in J.Y. Lin and B. Pleskovic (eds), *Lessons from East Asia and the Global Financial Crisis*. Annual World Bank Conference on Development Economics 2010, Global. World Bank Publications, 333–357.
- Civil Committee for the Development of Government-funded Science and Technology Institutes (2010), *Systemizing New National Science and Technology System and Plans to Develop Government-Funded Research Institutes*. Seminar Presentation material, National Assembly. (in Korean)
- Clotfelter, Charles T. (ed.) (2010), *American Universities in a Global Market*. Chicago, IL: University of Chicago Press.
- Cole, David et al. (2015), Overseas training programs for Korean government officials. Unpublished memo. KDI School of Public Policy and Management.
- Connell, S. (2014), Building a creative economy in South Korea: analyzing the plans and possibilities for new economic growth. *On Korea 2014: Academic Paper Series*, 7, 3–22.
- Cullen, Julie Berry, Steven D. Levitt, Erin Robertson, and Sally Sadoff (2013), What can be done to improve struggling high schools? *Journal of Economic Perspectives*, 27(2), 133–152.
- Dang, H.A. and Rogers, F. Halsey (2008), The growing phenomenon of private tutoring: does it deepen human capital, widen inequalities, or waste resources. *World Bank Research Observer*, 23(2), 161–200.
- Dawson, Walter (2010), Private tutoring and mass schooling in East Asia: reflections of inequality in Japan, South Korea, and Cambodia. *Asia Pacific Education Review*, 11, 14–24.
- DeCarlo, Lawrence, Youngkoun Kim, and Matthew Johnson (2011), A hierarchical rater model for constructed responses, with a signal detection rater model. *Journal of Educational Measurement*, 48(3), 333–356.
- Dong-A Ilbo (1993, July 12), Ministry of Education postpones the high school system reform. *Dong-A Ilbo* (Daily Newspaper), pp. 23. (in Korean)
- Dong-A Ilbo (2010, March 2), President Lee: Meister Schools are a challenge to change Korean education. *Dong-A Ilbo* (Daily Newspaper). Retrieved from <http://news.donga.com/3/all/20100302/26561505/1> (accessed December 11, 2017). (in Korean)
- Dong-A Ilbo (2011, July 25), President Lee directs employment measures for high school graduates. *Dong-A Ilbo* (Daily Newspaper). Retrieved from <http://news.donga.com/3/all/20110725/39047895/1> (accessed December 11, 2017). (in Korean)
- Dong-A Ilbo (2012, March 6), President Lee attends simultaneous opening ceremony of Meister Schools. *Dong-A Ilbo* (Daily Newspaper). Retrieved

- from <http://news.donga.com/3/all/20120306/44540870/1> (accessed December 11, 2017). (in Korean)
- Dosi Giovanni, Patrick Llerena, and Mauro Sylos Labini (2006), The relationships between science, technologies and their industrial exploitation: an illustration through the myths and realities of the so-called 'European Paradox'. *Research Policy*, 35, 1450–1460.
- Dugan, R.E. and K.J. Gabriel (2013), 'Special Forces' innovation: how DARPA attacks problems. *Harvard Business Review*, 91(10), 74–84.
- Dwyer, Carol Anne (2008), *The Future of Assessment: Shaping Teaching and Learning*. New York, NY: Taylor & Francis.
- Education Commission (2016), The learning generation: investing in education for a changing world. New York: The International Commission on Financing Global Education Opportunity.
- Ehrlich, Isaac (2007), The mystery of human capital as engine of growth or why the U.S. became the economic superpower in the 20th century. *NBER Working Paper* 12868.
- Elias, Maurice (2009), Social-emotional and character development and academics as a dual focus of education policy. *Educational Policy*, 23(6), 831–846.
- Freeman Richard B. (1976), *The Overeducated American*. New York: Academic Press.
- Frey, Carl Benedikt and Michle Osborne (2017), The future of employment: how susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254–280.
- Fuchs, Erica R.H. (2010), Rethinking the role of the state in technology development: DARPA and the case for embedded network governance. *Research Policy*, 39, 1133–1147.
- Fuchs, Thomas and Ludge Wößmann (2004), What accounts for international differences in student performance?: a re-examination using PISA data. *IZA Discussion Papers* 1287, Institute for the Study of Labor (IZA).
- Fullan, Michael and Maewa Langworthy (2014), *A Rich Seam: How New Pedagogies Find Deep Learning*. London: Pearson.
- Gneezy, Uri and John List (2013), *The Why Axis: Hidden Motives and the Undiscovered Economics of Everyday Life*. London: Random House Business Books.
- Goldin, Claudia and Lawrence Katz (2008), *The Race between Education and Technology*. Cambridge, MA: Harvard University Press.
- Green, F., D. Ashton, J. Sung, and D. James (1999), The role of the state in skill formation: evidence from the Republic of Korea, Singapore, and Taiwan. *Oxford Review of Economic Policy*, 15(1), 82–96.
- Greiner, W.D. and A. Varsori (2004), *Towards a History of Vocational*

- Education and Training (VET) in Europe in a Comparative Perspective: Proceedings of the First International Conference October 2002, Florence*. European Center for the Development of Vocational Training [CEDEFOP]. Office for Official Publications of the European Communities.
- Hamada, Koich, Keijiro Otsuka, Gusrav Ranis, and Ken Togo (eds) (2011), *Miraculous Growth and Stagnation in Post-war Japan*. London: Taylor & Francis.
- Hanushek, Eric A. (2002), *Why Is Education Reform so Hard?* Louisiana State University, Manship School of Mass Communication, Reilly Center for Media & Public Affairs, Public Policy Fellows Program.
- Hanushek, Eric A., Guido Schwerdt, Simon Wiederhold, and Ludger Wößmann (2015), Returns to skills around the world: evidence from PIAAC. *European Economic Review*, 73, 103–130.
- Heckman, James and Tim Kautz (2013), Fostering and measuring skills: interventions that improve character and cognition, *Discussion Paper No. 7750* (November 2013). Institute for the Study of Labor (IZA).
- Heckman, James, J. Stixrud, and S. Urzua (2006), The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. *Journal of Labor Economics*, 24(3), 411–482.
- Hoekstra, Mark (2009), The effect of attending the flagship state university on earnings: a discontinuity-based approach. *The Review of Economics and Statistics*, 91(4), 717–724.
- Hong, G.C. (2014), A study on the validity of the self-directed learning ability test for elementary school students. *Journal of Thinking Development*, 10(2), 1–30. (in Korean)
- Hong, S.J., C. Jeon, and J. Kim (2013), *The Internalization of Science and Technology in the Earlier Stage of Economic Development in South Korea, 2012* Modularization of Korea's Development Experience, Seoul: KDI School of Public Policy and Management.
- Hong, Song Chang (2012), The policy process of education information disclosure in Korea. *The Journal of Korean Education*, 39(1), 235–259. (in Korean)
- Hong, Sung Bum (2011), Study on the improving measures of effective R&D in national defense, in K. Kim et al. (eds), *Study on Improving Effectiveness of Government's R&D Investment*. Seoul: Korea Development Institute. (in Korean) (n.p.)
- Hoxby, Caroline M. (2003), School choices and school competition: evidence from the United States. *Swedish Economic Policy Review*, 10, 9–65.
- Hoxby, Caroline M. (2009), The changing selectivity of American colleges. *Journal of Economic Perspectives*, American Economic Association, 23(4), 95–118.

- Hwang, Y. and K.J. Kang (2011), *R&D and Technical Education*. 2010 Modularization of Korea's Development Experience, KDI School of Public Policy and Management.
- International Labour Office [ILO] (2010), *A Skilled Workforce for Strong, Sustainable and Balanced Growth: A G20 Training Strategy*. Geneva: International Labour Office.
- International Labour Office (ILO) (2014), Global employment trends 2014: supporting data sets. International Labour Organization: Geneva. http://www.ilo.org/global/research/global-reports/global-employment-trends/2014/WCMS_234879/lang--en/index.htm (accessed December 11, 2017).
- International Monetary Fund [IMF] (2006), *Republic of Korea: Selected Issues* (No. 6-381), Washington, DC: International Monetary Fund.
- IMD World Competitiveness Center (2014), *IMD World Talent Report 2014. IMD World Talent Report*. Institute for Management Development, Lausanne: Switzerland.
- Jaffe, Adam B. and Josh Lerner (2001), Reinventing public R&D: patent policy and commercialization of national laboratory technologies. *RAND Journal of Economics*, 32(1), 167–198.
- Jeong, Hyeok (2016), Nuts and bolts of the aid for vocational education: insights from a good practice. *Discussion Paper for Conference on More and Better Investment in Global Education* hosted by Korea Development Institute and Education Commission.
- Jeong, Hyeok and Ju-Ho Lee (2016), Korea's age-skill profile from PIAAC: features and puzzles. *KDI School Working Paper 16-01*. KDI School of Public Policy and Management.
- Jin, S.Y. (2013), Incubator of America's innovative research, DARPA. *LGRI Report*, LG Business Insight. (in Korean)
- Jung, J.S. (2016), Education for the future: math, science, and digital knowledge, in J.H. Park, G. Lee and S. Kim (eds), *Future Strategies for Korean Education*. Seoul: Hansun Foundation, 286–345.
- Katz, L.F. and David. H. Autor (1999), Changes in the wage structure and earning inequality. *Handbook of Labor Economics*, 3A, 1463–1555.
- Katz, L.F. and K.M. Murphy (1992), Changes in relative wages, 1963–1987: supply and demand factors. *Quarterly Journal of Economics*, 107(1), 35–78.
- Kim, E.G. and Y.K. Han (2002), *Attracting, Developing and Retaining Effective Teachers*. OR2002-8. Korean Educational Development Institute.
- Kim, Hisam (2011a), The effects of after-school class on the demand for private tutoring and academic performance of Korean students. *EWC-KDI Conference*.
- Kim, Hisam (2011b), Why self-study is more important than private tutoring? *KDI Policy Forum 231*. (in Korean)

- Kim, H.J., Y.K. Han, and H.J. Kim (1998), *Survey on Educational Spending of Korea*. RR98-25. Korean Educational Development Institute (in Korean)
- Kim, H.J., Y.K. Han, H.C. Kim, S.E. Kim, and Y. Kim (2003), *Survey on the Educational Expenditure in Korea*. RR98-25, Korean Educational Development Institute. (in Korean)
- Kim, H.Y. and W. Kang (2014), Effects of problem-based learning on the mathematical creativity and attitude. *The Journal of Korea Elementary Education*, 25(3), 75–92. (in Korean)
- Kim, Jae-woong, Kyung-chul Huh, Eun-soon Oh, and Hui-jeong Yun (2010), *Reflection and Prospect of Teaching and Learning Reform in Korea*. Korea Institute for Curriculum and Evaluation RRI 2010-3. (In Korean)
- Kim, Jin-Yeong (2007), University hierarchy and labor market. *Journal of Korean Economic Analysis*, 13(3), 1–72. (in Korean)
- Kim, K.H., S.Y. Ahn, S.S. Jang, M.R. Kim, and D.S. Choi (2009), *International Comparison of Lifestyle Pattern of Children and Youth*. Ministry of Health and Welfare & National Youth Policy Institute. (in Korean)
- Kim, Ki-Hwan (2013), *Korean Economic Miracle: Past Fifty Years and the Future Fifty Years*. Seoul: Kiparang. (in Korean)
- Kim, Kiwan (2008), *An Analysis of the Impact of R&D Subsidies on SMEs*. Seoul: Korea Development Institute. (in Korean)
- Kim, Kiwan (2013), Demand-based innovation policies and implications of PPI, in K. Kim and J-H. Lee (eds), *Innovation in National R&D System: Recommendations for Creative Economy*. Seoul: Korea Development Institute. (in Korean) (n.p.)
- Kim, Kiwan and Ju-Ho Lee (eds) (2013), *Innovation in National R&D System: Recommendations for Creative Economy*. Seoul: Korea Development Institute. (in Korean)
- Kim, Linsu (1997), *Imitation to Innovation: The Dynamics of Korea's Technological Learning*. Cambridge, MA: Harvard Business Review Press.
- Kim, Linsu (2001), The dynamics of technological learning in industrialisation. *International Social Science Journal*, 53(168), 297–308.
- Kim, Sunwoong (2012), From brain drain to brain competition: changing opportunities and the career patterns of U.S.-trained Korean academics, in C.T. Clotfelter (ed.), *American Universities in a Global Market*. Chicago, IL: The University of Chicago Press, 335–369.
- Kim, Sunwoong and Ju-Ho Lee (2006), Changing facets of Korean higher education: market competition and the role of the state. *Higher Education*, 52, 557–587.

- Kim Sunwoong and Ju-Ho Lee (2010), Private tutoring and demand for education in South Korea. *Economic Development and Cultural Change*; 58(2), 259–296.
- Kim, Y.C. (1992), A study on the development of vocational technical education system. Korea Education Development Institute. RR92-41. (in Korean)
- Kim, Y.J. (2014), Exploring subject-centered project learning as a method for developing creativity and personal growth in integrated elementary school curriculum. *Journal of Learner Centered Curriculum and Instruction*, 14(5), 261–286. (in Korean)
- Kim, Yong-seong and Ju-Ho Lee (eds) (2014), *A New Direction in Human Capital Policies for Korea*. Seoul: Korea Development Institute. (in Korean)
- Kim, Yoon Tae (2002), Analysis and evaluation of human resource development policies in Korea: 1962–2002. Korea Research Institute for Vocational Education and Training Research No. 02-38. (in Korean)
- Kim, Young-Hwa (2000), Concurrent development of education policy and industrialization strategies in Korea (1945–95): a historical perspective. *Journal of Education and Work*, 13(1), 95–118.
- Kim, Young-Hwa (2015), *Education and Economic Growth during Korean Industrialization*. Seoul: Kyoyukguahaksa. (in Korean)
- King, E.M. and F.H. Rogers (2014), Intelligence, personality, and creativity: unleashing the power of intelligence and personality traits to build a creative and innovative economy. *Background Paper for the Conference of Achieving HOPE: Happiness of People through Education* (November 4, 2014, Seoul). World Bank.
- Ko, Eunmi (2011), Changes in wage differentials among college graduates in South Korea. *Korean Journal of Labor Economics*, 34(1), 103–138.
- Kochen, M. (2014), Seven reasons why Korea has the worst productivity in the OECD. *Business Korea*. <http://www.businesskorea.co.kr/article/3698/insider-perspective-seven-reasons-why-korea-has-worst-productivity-oecd> (accessed December 11, 2017).
- Korea Advanced Institute of Science and Technology [KAIST] (1992), *The Twenty-year History of KAIST*. Korea Advanced Institute of Science and Technology.
- Korea Research Institute for Vocational Education and Training [KRIVET] (2014a), *2014 Conference on PIAAC* (Seoul, August 28, 2014). Korea Research Institute for Vocational Education and Training.
- Korea Research Institute for Vocational Education and Training [KRIVET] (2014b), *Labour Market Analysis Report of Botswana's Hospitality and Tourism Sectors*.
- Korea Research Institute for Vocational Education and Training [KRIVET]

- (2014c), *Botswana's Annual Report April 2013–March 2014*. BEAR Project.
- Korea Research Institute for Vocational Education and Training [KRIVET] (2014d), *Labour Market Analysis Report of Malawi's Agro-Processing and Wood Interior Finishing Sectors*.
- Korea Research Institute for Vocational Education and Training [KRIVET] (2014e), *Malawi's Annual Report April 2013–March 2014*. BEAR Project.
- Korea Research Institute for Vocational Education and Training [KRIVET] (2014f), *Labour Market Analysis Report of Zambia's Construction and Tourism Sectors*. BEAR Project.
- Korea Research Institute for Vocational Education and Training [KRIVET] (2014g), *Zambia's Annual Report April 2013–March 2014*. BEAR Project.
- Korea Research Institute for Vocational Education and Training [KRIVET] (2015), *KRIVET–UNESCO BEAR Result I Final Workshop: Sharing the Lessons from BEAR Result I*.
- Korea Research Institute for Vocational Education and Training [KRIVET] (2016), List of Meister Schools.
- Kyo Su Sinmun (2015, November 30), Ragged fake CSAT should be abolished, Kyo Su Sinmun. <http://www.kyosu.net/news/articleView.html?idxno=31801> (accessed December 11, 2017). (in Korean)
- Lee, C.G. (2008), Analysis for the policy making process of G7 project in 1990. *Journal of Technology Innovation*, 16(2). (in Korean)
- Lee, Chong Jae, Song Yol Kim, and Donald Adams (2010), *Sixty Years of Korean Education*. Seoul: SNU Press.
- Lee, Ju-Ho (2004), The school equalization policy in Korea: past failures and proposed measure for reform. *Korea Journal*, 44(1), 221–234.
- Lee, Ju-Ho (2013), National strategy to stimulate high-risk high-payoff research: a focus on establishing K-ARPA, in K. Kim and J-H. Lee (eds), *Innovation in National R&D System: Recommendations for Creative Economy*. Seoul: Korea Development Institute. (in Korean) (n.p.)
- Lee, Ju-Ho et al. (eds) (2012a), *In-jae-dae-gook 2012: The Education, Science & Technology Policies of Korea*, 2nd edition. Seoul: Korean Economic Daily and Business Publications Inc. (in Korean)
- Lee, Ju-Ho et al. (eds) (2013), *Positive Changes: The Education, Science & Technology Policies of Korea*, updated edition. Seoul: Korean Economic Daily and Business Publications Inc.
- Lee, Ju-Ho (2014), Making education reform happen: removal of education bubble through education diversification. *KDI School Working Paper*, KDI School of Public Policy and Management.
- Lee, Ju-Ho (2016), Turning around failing vocational high schools into Meister Schools. *Discussion Paper for Conference on More and Better*

- Investment in Global Education* hosted by Korea Development Institute and Education Commission.
- Lee, Ju-Ho and S. Choi (eds) (2015), *Skills of Koreans: Empirical Analysis and Future Strategies*. Seoul: Korea Development Institute. (in Korean)
- Lee, Ju-Ho and Song Chang Hong (2014), *The Development of Vocational High Schools in Korea During the Industrialization Period*, 2013 Modularization of Korea's Development Experience, KDI School of Public Policy and Management.
- Lee, Ju-Ho and Song Chang Hong (2016), Accumulating human capital for sustainable development in Korea. *Discussion Paper for Conference on More and Better Investment in Global Education* hosted by Korea Development Institute and Education Commission.
- Lee Ju-Ho, Hyeok Jeong, and Song Chang Hong (2014), Is Korea number one in human capital accumulation?: education bubble formation and its labor market evidence. *KDI School Working Paper* 14-03. KDI School of Public Policy and Management.
- Lee, Ju-Ho, B.Y. Kim, Y.S. Park, and S.J. Choi (2016), Educational reform through project-based learning (PBL). *KDI Focus*, 66, 1–8. Korea Development Institute.
- Lee, Ju-Ho, Kiwan Kim, Song Chang Hong, and Jee Hee Yoon (2015), Can bureaucrats stimulate high-risk high-payoff research? *KDI School Working Paper* 15-06. KDI School of Public Policy and Management.
- Lee, Ju-Ho, S.C. Ryoo, and Sam-Ho Lee (2014), From multiple choices to performance assessment: theory, practice, and strategy. *KDI School Working Paper* 14-07. KDI School of Public Policy and Management.
- Lee, Ju-Ho and Cheon-sik Woo (1998), The failure and reforms of Korean education, *KDI Policy Studies*, 20(1/2). Korea Development Institute. (in Korean)
- Lee, Keun and Byung-Yeon Kim (2009), Both institutions and policies matter but differently for different income groups of countries: determinants of long-run economic growth revisited. *World Development* 37(3), 533–549.
- Lee, K.K. (2004), *Development Aid and Cooperation on Korea: Study on the Size, Sector, and Effective Cases*. Seoul: Korea International Cooperation Agency. (in Korean)
- Lee, K.W. (2005), How effective were government strategies for the small and medium enterprises training consortium? *KOSBI Quarterly Economic Outlook*, 27(2), 175–203.
- Lee, Min Ho (2012), A study of institutional evolution of the large scale national R&D policy: focused on the program of G7, 21C frontier, the next generation growth engine. February 2012. Doctoral Thesis, Korea University. (in Korean)

- Lee, Min Hyung et al. (2012), *Redesigning New Role and Management System of Government Supported Research Institutes*. STEPI Policy Research. (in Korean)
- Lee, Seung Jong (2011), *A Research on the Distribution of the Research Budget of the Field-Specific National Research Programs and the Establishment of a Role of the Program Manager*. National Research Foundation. (in Korean)
- Lerner, Josh (1999), The government as venture capitalist: the long-term impact of the SBIR program. *The Journal of Business*, 72(3), 285–318.
- Lerner, Josh (2002), When bureaucrats meet entrepreneurs: the design of effective public venture capital programs. *The Economic Journal*, 112(477), F73–F84.
- Leuven, Edwin and Hessel Oosterbeek (2011), Overeducation and mismatch in the labor market. *Handbooks in Economics of Education*, 4. North-Holland.
- Leydesdorff, Loet and Ping Zhou (2005), Are the contributions of China and Korea upsetting the world system of science? *Scientometrics*, 63(3), 617–630.
- Lim, Youngjae (ed.) (2010), *Making Reform Happen: Lessons from Korea since 1987 Democratization*. Seoul: Korea Development Institute.
- Lissitz, Robert, Xiadong Hou, and Sharon Slater (2012), The contribution of constructed response items to large scale assessment: measuring and understanding their impact. *Journal of Applied Testing Technology*, 13(3), 1–50.
- Livingston, Samuel A. (2009), Constructed-response test questions: why we use them; how we score them. *ETS R & D Connections*, 11, 1–7.
- Lucas, Robert E. Jr. (1988), On the mechanics of economic development. *Journal of Monetary Economics*, 22, 3–42.
- Lucas, Robert E. Jr. (1993), Making a miracle. *Econometrica*, 61(2), 251–272.
- Maeil Kyungjje Shinmun (1977, July 19), The age of technician comes as we advance to top technical nations. *Maeil Kyungjje Shinmun* (Daily Economic Newspaper), July 19, p. 1. (in Korean)
- Marshall, Alfred (1920), *Principles of Economics, Book IV: The Agents of Production, Land, Labour, Capital and Organization*. Library of Economics and Liberty. <http://www.econlib.org/library/Marshall/marP15.html> (accessed December 11, 2017).
- McGinn et al. (1980), *Education and Development in Korea: Studies in the Modernization of the Republic of Korea 1945–1975*. Cambridge, MA: Harvard University Press.
- Mehra, Varun (2013), ARPA-E is here to stay *Science Progress*. <https://scienceprogress.org/> (accessed December 11, 2017).

- Miller, George (1990), The assessment of clinical skills/competence/performance. *Academic Medicine*, 65(9), S63–S67.
- Mingat, Alain (1998), The strategy used by high-performing Asian economies in education: some lessons for developing countries. *World Development*, 26(4), 695–715.
- Ministry of Education [MOE] and Korea Research Institute for Vocational Education and Training [KRIVET] (2015), *Guidelines for 11th Selection of the Meister Schools*. (in Korean)
- Ministry of Education and Science Technology [MEST] (2012), *Comprehensive Evaluation of 2012 Employment Project*. (in Korean)
- Ministry of Education, Science, and Technology [MEST] and Korea Institute of S&T Evaluation and Planning [KISTEP] (2011), *Survey on the Current Status of Science and Engineering Manpower*. (in Korean)
- Ministry of Science, ICT and Future Planning [MSIP] and Korea Institute of S&T Evaluation and Planning [KISTEP] (2012), *Report on the Survey and Analysis of National R&D Projects in 2012*. (in Korean)
- Ministry of Science and Technology [MOST] (1972), *A Study for the Improvement of the Science and Technology Qualifications System*, 3–5. (in Korean)
- Moon, J.E. et al. (2014), A qualitative inquiry into middle school students' learning experiences in a project-based Yungbokhap education setting. *Journal of Learner Centered Curriculum and Instruction*, 14(6), 389–420. (in Korean).
- Muri Ahmad, M. and Osama Alaskari (2014), Development of assessment methodology for improving performance in SMEs. *International Journal of Productivity and Performance Management*, 63(4), 477–498.
- National Academy of Sciences and National Academy of Engineering and Institute of Medicine (2007), *Rising Above the Gathering Storm: Engineering and Employing America for a Brighter Economic Future*.
- National Science and Technology Council [NSTC] and Ministry of Science, ICT and Future Planning [MSIP] (2013), *Guideline for Innovative and R&D Projects*. (in Korean)
- National Science Board (2007), *Enhancing Support of Transformative Research at the National Science Foundation*. National Science Foundation (NSB 07-32).
- Organisation for Economic Co-operation and Development [OECD] (2004), *Learning for Tomorrow's World: First Results from PISA 2003*. Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development [OECD] (2009), *Creating Effective Teaching and Learning Environments: First Results from TALIS*. Paris: OECD Publishing.

- Organisation for Economic Co-operation and Development [OECD] (2010), *Education at a Glance 2010*. Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development [OECD] (2011), *PISA 2009 Results: Students on Line: Digital Technologies and Performance* (vol. VI). Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development [OECD] (2013a), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*. Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development [OECD] (2013b), *PISA 2012 Assessment and Analytical Framework: Mathematics, Reading, Science, Problem Solving and Financial Literacy*. Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development [OECD] (2013c), *PISA 2012 Results: What Students Know and Can Do (Volume I)*. Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development [OECD] (2014a), *OECD Economic Surveys Korea Overview, June 2014*, http://www.oecd.org/eco/surveys/Overview_Korea_2014.pdf (accessed December 11, 2017).
- Organisation for Economic Co-operation and Development [OECD] (2014b), *PISA 2012 Results: What Students Know and Can Do—Student Performance in Mathematics, Reading and Science* (vol. I, revised edition, February 2014). Paris: PISA, OECD Publishing.
- Organisation for Economic Co-operation and Development [OECD] (2015), *Education at a Glance*. Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development [OECD] (2016), *PISA 2015 Assessment and Analytical Framework: Science, Reading, Mathematic and Financial Literacy*. Paris: PISA, OECD Publishing.
- Park, J.H., G. Lee, S.G. Jang, and B. Son (2012), *Role and Function of the National Technical Qualification System in the Development of Vocational Ability*. 2011 Modularization of Korea's Development Experience, KDI School of Public Policy and Management.
- Park, J.S. (2015), Measures to improve local education autonomy and superintendent election system. *Review of Current State of Education Autonomy*, 39–51. (in Korean)
- Patrinos, Harry (2016), 'Five innovative education trends from Korea,' *Education for Global Development: A Blog about the Power of Investing in People*, World Bank.
- President's Council of Advisors on Science and Technology [PCAST] (2012), *Transformation and Opportunity: The Future of the U.S. Research Enterprise*. Report to the President, Washington, DC.

- Pritchett, Lant (2001), Where has all the education gone? *The World Bank Economic Review*, 15(3), 367–591.
- Ra, Young-Sun and Soon-Hee Kang (2012), *Vocational Training System for a Skilled Workforce*, 2011 Modularization of Korea's Development Experience, KDI School of Public Policy and Management.
- Robert, R. Nathan Associates (1952), *Preliminary Report on Economic Reconstruction of Korea* (Vol. Doc. UNKRA/AG/13, Rep.). Washington, DC: The UNKRA.
- Romer, Paul M. (1990), Endogenous technological change. *Journal of Political Economy* 98(5), 71–102.
- Rothschild, Michael and Lawrence J. White (1993), The university in the marketplace: some insights and some puzzles, in Charles T. Clotfelter (ed.), *Studies of Supply and Demand in Higher Education*. Chicago, IL: University of Chicago Press, 11–37.
- Rothschild, Michael and Lawrence J. White (1995), The analytics of the pricing of higher education and other services in which the customers are inputs. *Journal of Political Economy*, 10(3), 573–586.
- Ryu, Deockhyun and Changhui Kang (2013), Do private tutoring expenditures raise academic performance? Evidence from middle school students in South Korea. *Asian Economic Journal*, 27(1), 59–83.
- Ryu, S.C. and H.A. Kim (2011), *Asan Chung Ju Young and Korean Economic Development Model*. Seoul: Jipmoondang, pp. 99–146. (in Korean)
- Saavedra, Juan (2008), *The Returns to College Quality: a Regression Discontinuity Analysis*. Cambridge, MA: Harvard University Manuscript.
- Schmitt, D.P., J. Allik, R.R. McCrea, and V. Benet-Martnax (2007), The geographic distribution of big five personality traits: patterns and poles of human self-description across 56 nations. *Journal of Cross-Cultural Psychology*, 38(2), 173–212.
- Schulz, W., J. Ainley, J. Fraillon, D. Kerr, and B. Losito (2010), *ICCS 2009 International Report: Civic Knowledge, Attitudes and Engagement among Lower Secondary School Students in Thirty-eight Countries*. Amsterdam: IEA.
- Schwab, Klaus (2016), *The Fourth Industrial Revolution*. Cologny, Switzerland: World Economic Forum.
- Seo, H.K. and Y.M. Kim (2012), The effectiveness of a PBL based self-directed learning program. *Journal of Learner Centered Curriculum and Instruction*, 12(1), 183–204. (in Korean).
- Seong, Tae-Jae et al. (2013), *2020 The Direction and Challenge of Korea's Elementary and Middle School Education: Curriculum, Teaching, and Assessment*. Hakjisa. (in Korean)
- Song, C.U., S.B. Hong, Y.S. Jang, K.K. Kim, and J.H. Seo (2014), *A*

- Feasibility Study on the Introduction of K-ARPA System*. Science and Technology Policy Institute [STEPI]. (in Korean)
- Song, W., Y.C. Kim, H.R. Hwang, and J.Y. Chung (2006), *In Search of Post Catch-up Innovation System*. STEPI Policy Research, 25. Science and Technology Policy Institute [STEPI]. (in Korean)
- SRI International and National Research Foundation [NRF] (2012), *Report of International Consulting Committee to National Research Foundation: Becoming a Global Leader in Research Support*.
- Stephan, Paula (2012), *How Economics Shapes Science*. Cambridge, MA: Harvard University Press.
- Stern, Scott (2004), Do scientists pay to be scientists. *Management Science*, 50(6), 835–853.
- Stokes, Donald E. (1997), *Pasteur's Quadrant: Basic Science and Technological Innovation*. Washington, DC: Brookings Institution.
- Stone, Richard (2013), South Korea's change into basic research meets resistance. *Science*, 342(18), October 2013, 302.
- Suri, Tavneet, Michael A. Boozar and Gustav Ranis (2010), Paths to success: the relationship between human development and economic growth. *World Development*, 39(4), 506–522.
- Takayama, Keita (2007), A nation at risk crosses the Pacific: transnational borrowing of the U.S. crisis discourse in the debate on education reform in Japan. *Comparative Education Review*, 51(4), 423–446.
- Tasca, Henry J. (1953), *Relief and Rehabilitation Recommendations Contained in the Report to the President by Dr. Tasca (Rep.)*. Washington, DC: GPO: NSC 176.
- The 24th Presidential Council on National Competitiveness (2011), *Measures to Establish Education System of Simultaneous Study and Work for Enhancement of Technical Skills, Expansion of Productivity and Employment Welfare*. (in Korean)
- Trilling, Bernie and Charles Fadel (2009), *21st Century Skills: Learning for Life in Our Times*. Hoboken, NJ: Jossey-Bass A Wiley Imprint.
- UNESCO (2011), *BEAR Project: Summary Formulation Report for Five Beneficiary Countries*.
- Van Atta, R. (2007), Energy research and DARPA model, *Subcommittee on Energy and Environment, Committee on Science and Technology*, Washington, DC.
- Van Atta, R. (2008), *Fifty Years of Innovation and Discovery, 50 Years of Bridging the Gap*. Arlington, VA: DARPA.
- Woo, Seokjin, Soohyung Lee, and Kyunghie Kim (2015), Carrot and stick? Impact of a low-stakes school accountability program on student achievement. *Economics Letters*, 137, 195–199.
- Würzburg, Gregory (2010), Making reforms happen in education, in

- OECD. *Making Reform Happen: Lessons From OECD Countries*. Paris: OECD, 159–181.
- Yeo, S.H. and W.Y. Eom (2014), Developing a design model for project-based learning in accordance with primary school curriculum. *Journal of Educational Technology*, 30(2), 259–283. (in Korean)
- Yoo, D.H. and J.Y. Choi (2013), A meta-analysis on the effect of project method for elementary and secondary school students. *The Journal of Practical Education*, 19(2), 23–48. (in Korean)

DATA SOURCES

- Academic Ranking of World Universities [ARWU]. <http://www.shanghai-ranking.com/ARWU2016.html> (accessed March 21, 2017).
- Center for Higher Education Information Disclosure, Korean Council for University Education [KCUE], <http://www.academyinfo.go.kr> (accessed April 15, 2014).
- Essential Science Indicators [ESI]. Web of Knowledge. <http://www.webofknowledge.com> (accessed April 17, 2013).
- International Labor Organization [ILO], Global Employment Trends 2014. http://www.ilo.org/global/research/global-reports/global-employment-trends/2014/WCMS_234879/lang--en/index.htm (accessed July 6, 2016).
- Maddison Project Database. <http://www.ggd.net/maddison/maddison-project/home.htm> (accessed December 11, 2017).
- Ministry of Education [MOE] and Korean Educational Development Institute [KEDI]. *Statistical Yearbook of Education (1965–2015)* <http://kess.kedi.re.kr/> (accessed June 20, 2017).
- Ministry of Labor, Dataset of South Korean Occupational Wage Survey [OWS] 1980–2011. <http://kosis.kr/index/index.do> (accessed March 20, 2016)
- National Science and Technology Information Service [NTIS], Survey and Analysis of National R&D Program of Korea, <http://www.ntis.go.kr> (accessed March 5, 2014)
- Organisation for Economic Co-operation and Development [OECD], *Main Science and Technology Indicators*.) <http://stats.oecd.org> (accessed April 14, 2014).
- Organisation for Economic Co-operation and Development [OECD], Programme for International Student Assessment [PISA], <https://www.oecd.org/pisa/data/> (accessed December 11, 2017).
- Organisation for Economic Co-operation and Development [OECD], Survey of Adults Skills [PIAAC], <http://www.oecd.org/skills/piaac/> (accessed December 11, 2017).

- Organisation for Economic Co-operation and Development [OECD], Teaching and Learning International Survey [TALIS]. <http://www.oecd.org/edu/school/talis.htm> (accessed December 11, 2017).
- Penn World Tables Version 8.1. <http://www.rug.nl/research/ggdc/data/pwt/pwt-8.1> (accessed December 11, 2017).
- QS Rankings. <https://www.topuniversities.com/university-rankings> (accessed December 4, 2016).
- Statistics Korea, Korean Statistical Information Service. <http://kosis.kr> (accessed March 10, 2017).
- UNESCO Database. <http://stats.uis.unesco.org> (accessed August 24, 2015).
- Web of Science, Thomson Reuters. <http://webofscience.com> (accessed April 15, 2013).
- World Competitiveness Online. <https://worldcompetitiveness.imd.org> (accessed August 19, 2015).