

Hong, Sung-Joo and Wi-Chin Song 홍성주·송위진, *Hyeondae hangugui gwahak gisul jeongchaek: Chugyeogui seonggong'gwa talchugyeok silheom* 현대 한국의 과학기술정책: 추격의 성공과 탈추격 실험 (South Korea's Science and Technology Policies: The Shaping of Catch-up System and Its Transformation for a Post-Catch-Up Era). Paju: Deulnyeok, 2017. 336 pp.

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“What is the driving force that made possible and sustained Korea’s economic development?” (preface). The case of Korea, which went from being a poor, war-ravaged country to an industrialized one with substantial technological capabilities, has received much attention from scholars and policymakers around the world. In this well-researched book, Sung-Joo Hong and Wi-Chin Song answer this question by looking into the 60-year history of Korea’s science and technology policy.

This book adopts a widely used periodization. The catch-up era, following the Korean War to the early 1990s, is the period when national policies focused on following the paths of technological development that are experienced by developed countries. In the post-catch-up era, from the late 1990s to the present, South Korea has navigated own path for innovation. The authors see science and technology policy in these two eras as being fundamentally different and thus so, too, are their analytical approaches. The catch-up era is written by Hong and uses historical analysis whereas Song handles the more recent period, which is approached from the perspective of innovation studies. While the two parts are somewhat independent, together they convincingly illustrate how science and technology policies have evolved over time in response to domestic and international circumstances as well as how legacies of the catch-up era continue.

The authors argue that government-led policies during the catch-up era were an unprecedented success while post-catch-up science and technology policy is still at an experimental stage. In so arguing, this book emphasizes two things. First, the success of the catch-up period deserves to be properly evaluated. They directly express their concern on the recent propensity to evaluate the catch-up era in the late twentieth century “as if it were easy” or “the past to be buried.” By closely examining how policy choices were made under what historical circumstances, they claim that

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the hard-earned successes of the catch-up period can be better understood. Part one is devoted to catch-up science and technology policy from the late 1950s to the early 1990s. Based on a meticulous analysis of archival sources, this part demonstrates how the “internalization of science and technology” was achieved and how science and technology became a part of a national system. The author pays attention to blueprints for science and technology development, technology importation strategies, human resources development, and the building of a national research system, showing the government’s leading and overarching role in developing technological capacity throughout the catch-up period.

Understanding Korea’s catch-up is also beneficial as a guide to developing countries interested in learning lessons from Korea’s success. Part one, in particular, provides the key ingredients of the recipe for success. For instance, Hong stresses that maintaining a nationalistic approach in receiving official development aid and importing technology was important. According to the author, the nationalistic view toward science and technology dates back to the post-colonial period when scientists believed science and technology should be foundational to the nation building. In the 1960s when the Korean government was dependent on foreign aid, nationalism enabled the internalization of technology, rather than depending on foreign personnel. This was further reinforced later, as science and technology policy was aligned with the national goal of industrial development and economic growth. Positioned as a means to achieve that larger goal, science and technology were justified in receiving strong support from political leaders. In other words, the government built, set goals, and created roles for researchers as a part of the public sector, as opposed to researchers creating their own destiny during this period.

Second, the key elements of “success in catching-up” have become major obstacles to the “post-catch-up experiment.” The authors stress that the repercussions of catch-up policies have been preventing Korea’s science and technology—innovation systems, policies, governing structures, research and development—from strengthening their innovative and creative capacities. At the end of the part one, Hong particularly draws the reader’s attention to a hierarchical and dependent relationship between the leading role played by the government and the passive role of the research and development community. She points out that this successful catch-up strategy has become a significant liability since the 2000s because the bureaucratic dynamics of the government leave little room to explore new paths of innovation. Thus, although this book begins making a distinction between two periods (catch-up and post-catch-up) in the history of Korea’s science and technology policy, it actually ends up illuminating how that distinction remains unclear.

The path dependency of catch-up strategies is an overarching theme of part two, which examines “post-catch-up experiments” in three major sectors: industry, government, and civil society. Since the late 1990s, imitating known technological trajectories has turned out to be less effective. That attributes to both internal and external reasons; as catching up had succeeded, there were fewer areas of technology for catching up and developing countries became much more sensitive to technology

transfer. Thus, post-catch-up strategy requires “creative innovation pioneering a new technological trajectory” rather than imitation and solving the “open question of building one’s own technology and systems without any orientation” (155-156).

The key argument of the part two, however, is that a system of catch-up continues to influence thinking and policymaking regardless of the changing circumstances. For instance, “selection and concentration,” or targeting strategy was an efficient and effective resource allocation policy in the catch-up era. But it inhibits Korea from moving towards post-catch-up innovation by strengthening large corporate-centered innovation systems, competition over resources, political influence over science and technology policy, and the hype surrounding new and emerging technologies. In part two, Song contends that system innovation is needed. Rather than focusing on technological innovations, what necessary is to change the “system and context of technological innovation” by developing new ways of defining problems, making decisions, and governing science and technology (261).

While the two authors analyze different time periods and use different analytical approaches, they share a macroscopic view. They each focus on scientific and technological institutions, such as governmental policies, administrations, organizations, research, industry, and civil society. In that sense, the two authors inherit the two influential schools of studying science and technology policy in Korea. First, historians have paid attention to the creation, changes, and influences of important scientific organizations or programs. Second, scholars of management, economics, and public administration have focused to innovation systems and innovation policy, asking how to foster innovation capacity of an industry, city, or nation. By taking a macroscopic view, the authors do not tell the implementation side of the story. For instance, this book does not provide readers with insight on how the policies made by high-ranking figures in government and industry were responded to and delivered by scientists and engineers in the field. In that sense, this book could be complemented by, for instance, Kyonghee Han and Gary Lee Downey’s *Engineers for Korea* (2014), which discusses how “techno-national images,” or nation-wide imaginations and aspirations for development, were co-created and shared by engineers.

Similarly, the authors put innovation at the center of narrating the history of science and technology policy. In other words, Linsu Kim’s pioneering study explaining Korea’s technology development strategy as “from imitation to innovation” forms the backbone of this work. Increasingly, however, historians of technology are taking a non-innovation-centric view, for instance, by discussing how technology importing countries redefine and reinvent the use of such technologies. Hyungsub Choi’s recently published article on the history of the power tiller is an example of one such study. His article provides a telling case of local adaptations, as well as the social changes brought by, and the political ideals instilled in, the technology.

Overall this is a very welcome book on Korea’s science and technology policy. While there are understandable limitations as to why such considerations may not have been included in the book, this book nonetheless provides readers with a better understanding of Korea’s history of science and technology policy. With careful

analysis, the two authors provide insights for researchers and students in the relevant fields, including the history of science and technology, development studies, and innovation studies, as well as modern Korean history. Some chapters of this book will trigger good classroom discussions in both undergraduate and graduate classes. More broadly, this book will be of value to scientists, engineers, and policymakers concerned about policy issues, as well as those overseas, especially in developing countries, who wish to learn from Korea's experience. An in-depth analysis provides readers with a deeper understanding of the historically rooted, structural characteristics of Korea's science and technology policy. The authors' abundant experience in policy research and policy advising makes this book not just academically significant but also invaluable for future science and technology policymaking.