Response from the Authors: The Enduring Salience of East Asia's Automotive Experiences

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We had several objectives in undertaking the research for *The Political Economy of Automotive Industrialization in East Asia*. One was to provide a definitive comparative account of the development of the automotive industry across East Asia. The auto industry is important in its own right—given its centrality in modern manufacturing and in global trade—but we have been interested in the industry primarily for how it could help us address broader questions, indeed, the most significant issues confronting students of the political economy of development: what makes for successful upgrading in key economic sectors; what are the institutional requirements for such upgrading; and, in turn, what are the political conditions that lead to the supply of the requisite institutions?

In addressing such large questions, we inevitably paint with a broad brush. We would be the first to acknowledge the need to explore many of the issues raised by the commentators, e.g., the relationship between resource constraints and investments in institutions, what makes for effective relations between states, industry-specific institutions, and firms, and the significance in China of state-sponsored competition within the industry. We agree with Natasha Hamilton-Hart that more micro-level studies are needed. And we view Roselyn Hsueh's cross-sector and cross-national analyses as building on the logic of our book and providing the basis for such studies.

Our finding that the countries that have been most successful in building local competencies in the industry—Korea, Taiwan, and China—(pursuing an "intensive" development strategy in our terminology) might seem consistent with the "conventional wisdom" of developmental state approaches. We believe, however, that our focus on a single sector across multiple countries enables us to provide a more nuanced account of the institutional competencies and the political pre-requisites for alternative paths to automotive industrialization. Both intensive and extensive strategies might seem "successful" when measured by conventional indicators such as employment, output, and exports. But only one strategy was transformative. Only in China, Korea, and Taiwan have domestic firms acquired significant capacity in research and design that laid the foundation for product and process upgrading.

In contrast, firms in our most successful case of an "extensive" strategy—Thailand—continue to lack the capacity to engage in product and/or process upgrading. This is reflected by indicators such as low levels of automotive research and development, limited capacity to design and engineer whole vehicles and, most strikingly, limited capacity to develop and export key parts and components despite long production experience and/or access to relevant raw materials. In turn, these failings reflect the weakness or absence of policies designed to promote local technology development and of institutions whose purpose is to formulate and implement such policies: sectoral institutes, standards agencies, public testing-research institutes, and effective

https://doi.org/10.1017/jea.2022.27 Published online by Cambridge University Press

technical-vocational training. The weakness of such institutions in the auto sector differentiates Thailand from China, Korea, or Taiwan.

We are conscious of the need to address the "so what" question. Eun Mee Kim reasonably asks what implications the historical experience of seven East Asian countries in one sector have for the contemporary challenges faced by developing economies. The book's concluding chapter presents an examination of the contemporary relevance of the East Asian experience in the automotive industry, including brief studies of auto industries outside East Asia that address one dimension of this question. We will take the opportunity here to elaborate on the enduring relevance of the East Asian case.

We acknowledge the ongoing salience of Heraclitus' aphorism "you can't step into the same river twice." There were, indeed, unique circumstances that shaped the emergence of the auto industry in East Asia—ranging from the region's role as a significant arena for Cold War conflict to the US limitations on car imports from Japan in the 1980s, which proved a boon for the Korean industry at a crucial time in its development. We are confident, however, that the conclusions that we draw from our study are relevant to other industrial sectors in other developing economies.

To begin with the auto industry itself: it will retain its significance in global manufacturing for the foreseeable future. Markets in industrialized countries may be saturated but there is enormous potential for market growth in large developing economies as per capita incomes rise, environmental constraints notwithstanding. And in industrialized economies, the move to electric vehicles will drive a new wave of demand. To be sure, the transition away from the internal combustion engine will pose new challenges for companies and governments alike. Software is projected to become the largest source of revenue for the industry by the end of this decade (The Economist, 2022). The increasing importance of software and semiconductors, coupled with new concerns about security of supply of components is likely to lead to a reversal of the dominant trend over the last quarter of a century of assemblers outsourcing activities to component suppliers: vertical integration is back in fashion. Meanwhile, although electric motors may be less complex than their predecessors, assemblers of electric vehicles still need to overcome many of the traditional challenges in auto manufacturing. Tesla cars, for instance, have consistently been rated towards the bottom of all brands in reliability surveys conducted by JD Power and by Consumer Reports: their problems stem not from their advanced technology but conventional issues relating to build quality (bodywork), suspension, and brakes (Rizqui, 2021). Assemblers will face challenges not just in incorporating new technologies but also in continuing to address conventional quality control issues.

As Robert Wade notes in his commentary, and as we assert strongly in the book, one of the key factors distinguishing the cases of successful intensive development was the investment by the state in education to produce a workforce with skills relevant to the auto sector. In the future the relevant skills for the labor force will include a mixture of "new" capabilities in software design as well as conventional qualifications in mechanical engineering. There will still be an important role for sectoral institutions in upgrading skills and in helping companies with product development and quality control. We remind readers in the book that although discussion of the auto industry typically focuses on high-profile assemblers, more than two-thirds of

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value added in the sector is generated by components suppliers. Components production is the most likely entry route into the industry for domestic firms in developing economies. Re-verticalization of the industry may further complicate the challenges they face. But this trend again underlines the potential value of sectoral institutions to help small and medium-sized firms address the challenges they face.

Our conclusions regarding the importance of skills and of sectorally specific institutions will continue to be relevant beyond the auto sector. We emphasize throughout the book that there is no "one size fits all" solution: successful institutions are context-specific.

Finally, we turn to "supply" side issues. It is usually politically as well as economically costly for governments in developing economies to invest in the institutions required for successful economic upgrading: we trace their capacity and willingness to do so directly to resource scarcity and external threats. The "end of history" optimism that accompanied the fall of the Berlin Wall has long since dissipated. The Covid pandemic and the Russian invasion of Ukraine have generated a "new era of insecurity." Governments and companies alike are pre-occupied with the security of supply chains. The existential threat faced by China, Korea, and Taiwan over the last seven decades may not be replicated in many parts of the world—although the Ukraine war makes this less unthinkable than it was two years ago. But the new concern with security has already had dramatic impacts on state investments in key sectors, seen, for example, in the Creating Helpful Incentives to Produce Semiconductors for America (CHIPS) Act, passed by the US Congress in 2021, and the Economic National Security Law adopted by the Japanese government in 2022. Similarly, in South Korea, the government pledged $6.5 billion in 2019 for research and development to reduce its dependence on Japan for industrial inputs and has set up multi-agency task forces to identify inputs that come overwhelmingly from a single source. At the same time, in June 2022, Japan and Korea joined the US in the Mineral Security Partnership, intended to bolster the supply of critical minerals. The new pre-occupation with securing supply chains has already generated significant state investments in national capabilities.

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doi:10.1017/jea.2022.27