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REVISITING THE ROLE OF HUMAN CAPITAL IN DEVELOPMENT: DISCUSSION

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This special issue is based on a seminar held at the Institute of Developing Economies, Japan External Trade Organization (IDE-JETRO) in 2017, focusing on human capital. In a panel discussion at the seminar, the audience and speakers posed questions and offered comments. Below are the interactions summarized according to three major topics covered in this discussion, that is, China's human capital, cluster-based industrial development, and urban development.

I. HUMAN CAPITAL DEVELOPMENT IN CHINA

NOBUHIKO Fuwa, the facilitator, opened the panel discussion by posing a set of questions collected from the floor to Scott Rozelle regarding the state of gender disparity in human capital development in China, the unfavorable impacts of parenting given by grandmothers in urban versus rural China (e.g., Yue et al. 2017), and the time span of his concerns about the lack of human capital development in rural China. Rozelle responded by making the following four points. First, the relevant gender disparities have almost, though not completely, disappeared in rural China. By referring to improvements in women's social status in general, as well as to the finding that girls in his study sample held higher intelligence quotient (IQ) scores than boys to a similar extent as found in developed countries, he made it clear that the educational achievements of girls in rural China were no worse than those of boys. In rural China, both boys and girls face similar educational difficulties.

Second, he clarified his point about the adverse effect of grandmothers on children's human capital by stating that the underlying mechanisms are largely

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unknown. He thus emphasized that we should start trying to understand the impact of grandmothers as caregivers on the IQs of babies. He also pointed out that academic research so far might have focused too much on IQ. Since children's emotional intelligence (EQ) interacts with IQ, the relationship between children's IQ in their early stages of life and their future success is unclear; it is possible that grandmothers create productive human resources in the long term because they may nurture children's EQ.

Third, he emphasized the importance of the time frame of his concern about low-IQ scores in rural China, and made clear that most jobs *currently* available in China are particularly suitable for low-skilled workers. In other words, the low-IQ problem is *not* today's problem. However, it will gradually become a significant concern for China in 5, 10, or 15 years.

That raises the question of what can be done about the poorly educated young adults of today. For his fourth point, by touching upon the community college system in the United States, Rozelle argued that adult education programs are unlikely to be effective unless adult students had already received a certain, possibly high, level of education during childhood. He thus indicated the potential importance of exploring effective ways of keeping young students in school for longer periods as a fruitful avenue for future research.

Keijiro Otsuka suggested one possible reason for the issues raised by Rozelle. Since the Chinese economy has been rapidly growing due to globalization and high-tech development, despite the low level of schooling, people may undervalue education, thus discouraging educational investment. Following this comment, Rozelle highlighted "time inconsistency" as one of the biggest problems in China, that is, the gap in time between when an economy grows and when the underlying socioeconomic conditions improve; compared to Japan, where industrialization and income growth spanned five generations, China achieved similar success in just one generation. This rapid economic progress has outpaced changes in people's perceptions about how to raise children in a relatively more modernized society. In this sense, as argued by Rozelle, the unfavorable grandmother effects discussed earlier can be seen as one realization of this time inconsistency problem. In other words, grandmothers could have provided children with suitable educational input had China's economic development been more gradual.

Somewhat related to the concern raised by Rozelle about China's human capital accumulation, Jacques-François Thisse referred to the examples of Philadelphia and Pittsburgh in the United States, where educational achievements (e.g., test scores, attendance) are relatively low despite high levels of government expenditure per student, suggesting the possibility that a highly decentralized education systems may result in greater inefficiency. While acknowledging that this question is somewhat out of his field, Rozelle agreed and pointed out that

many countries that graduated from middle-income status (e.g., Israel, Ireland, New Zealand, Singapore, South Korea) historically had centralized education systems where the central governments pay for everything.

II. CLUSTER-BASED INDUSTRIAL DEVELOPMENT

The panel discussion then moved to the topic of industrial development. A concern was raised from the floor about wage inequality between managers and workers, and its possible negative influence on industrial development. In response, Otsuka emphasized the importance of increasing firms' total surplus in the first instance, rather than focusing on the distribution of the surplus. As both blue- and white-collar workers have comparative advantages in identifying the relevant managerial problems hindering firms' productivity, he argued that all workers must collaborate to improve total productivity from the early stages of industrial development. This is an essence of the Japanese style management, called *kaizen.*

Somewhat related to China's time inconsistency problem, Rozelle also put forward the question to Otsuka of whether the timings or socioeconomic environments, such as increasing demand for high-quality products associated with rapid income growth across the entire economy, would matter for successful cluster-based industrial development. Otsuka clarified that demand-side factors were also important in prompting firms' innovative activities. As he explained, the training for entrepreneurs, for example, may not make a significant difference in improving product quality unless great demand for high-quality products exists. Thus, although the current Sonobe–Otsuka model of cluster-based industrial development considers only the endogenous process of industrial development, the extension of the model should take into account exogenous changes such as income growth.

III. URBAN DEVELOPMENT

The discussion next moved to the topic of urban development. Rozelle asked Thisse whether Chinese cities were still "too small," and whether scale economies in providing social services can arise in large cities in low- to middle-income countries. Thisse responded by noting, first, that Chinese cities were likely too small given the still-existing entry barriers into cities, but that it is hard to say how much is "too small." He then added, as his second point, that while policymakers sometimes want to make their cities bigger, city size *per se* should not be a policy objective. Nowadays, many cities are specialized in terms of economic sectors (or activities), yielding local multiplier effects. Thus, city size is largely characterized by scale economies corresponding to the relevant sectors of

specialization. Third, regarding economies of scale in social services, he argued that scale economies differ across sectors providing different services; this is true even within the health services sector among services addressing different diseases, because treatment of some, but not all, diseases requires expensive equipment. In the education sector, he argued that soft scale economies exist for university education. Then, he argued that equally placing universities across distant places may yield larger inefficiencies in encouraging technological innovation. The government thus has to make a political decision as to where they allocate particular activities and/or help the endogenous process of sectoral specialization across cities.

Following this discussion, Otsuka also asked Thisse whether urbanization was good for developing countries in which human capital is scarce. Thisse avoided hasty judgement in answering this question and instead carefully made five points concerning "urbanization," "good," and "developing countries." First, Thisse highlighted the importance of clearly defining "cities" when discussing urbanization because cities may range from the largest cities in a country to mid-sized as well as small cities. Second, he noted that urban productivity tends to be high in (at least many of) both developed and developing countries, which may be characterized by the spatial concentration of human capital. Third, scale economies create the total surplus or rent in cities, although its distribution may be fairly unequal among urban residents, particularly in developing countries. Fourth, by referring to building regulations in India, Thisse also discussed how housing regulations in cities had to be smart because, otherwise, for instance, they could be detrimental to urban productivity while creating urban slums. Fifth, there is huge heterogeneity across developing countries and, thus, the so-called Third World may no longer exist.

IV. USE OF RANDOMIZED CONTROLLED TRIALS IN EMPIRICAL RESEARCH

Finally, the panel discussion also touched upon some methodological issues in empirical development economics, especially the roles of randomized controlled trials (RCTs), as utilized in both Otsuka and Sonobe's (2018) and Rozelle's series of studies, and of other, more traditional approaches. Comparing the current abundance of RCT-based studies to the quantity-expansion stage in the model of cluster-based industrial development in which only similar products are produced, Otsuka argued that empirical studies using RCTs now need to progress to the quality-improvement stage, in which, he believes, RCTs should be combined with conventional approaches. Otsuka and Sonobe (2018) first took pedestrian approaches and identified limited managerial capabilities as possibly the most important problem preventing industrial development. To test this

hypothesis rigorously, they applied RCTs in their subsequent research. This sort of combination between conventional approaches and RCTs may be required in future research.

Rozelle stated that he used RCTs to show local leaders the consequences of their policies, and by doing so, helped them design effective policy programs. He then made three methodological points in relation to theories, external validity, and feedback from RCTs to theories. First, he emphasized that empirical studies had to start with a theory, which guides us to a meaningful question. Second, one needs to repeat similar RCTs *many times*, possibly in different contexts, to provide just *one* piece of externally valid evidence. Third, these sorts of repeated experiments may produce another set of theoretical knowledge. In his experiences in China, for example, he repeatedly conducted a number of health-related interventions for sixth to ninth grade students (junior high school level) and found no positive impacts on their educational achievements, although similar programs were highly effective for the learning of students belonging to the first to sixth grades (primary school levels). Careful examination of the data showed that good students at junior high school were already working so hard that they could not work any harder, whereas bad students were mentally or cognitively incapable of learning, leading to no average impacts. While this finding was not initially expected, this RCT-based study yielded knowledge that one may need to design fast- or slow-track education programs at junior high school depending upon students' learning capacities. The theory and data analyses must be well integrated in empirical studies exploiting RCTs.

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