Era of Digitalization and Industrial Development of Developing Countries

Need for a Real Sector-Oriented Approach

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The conventional theory of development economics assumes a structural transformation of the economy from the primary (agriculture), through the secondary (industry), to the tertiary (service) sector. Furthermore, the East Asian "Flying Geese Pattern" of development, based on regional production networks among economies with different levels of industrialization ranging from labor-intensive to capital or knowledge-intensive manufacturing, has been traditionally regarded as a successful development model. Now, the digital revolution, by promoting labor-saving technologies, is bringing new challenges and opportunities for development paths. What impact will digitalization have on the future of industrialization in developing countries? Here is a discussion by Izumi Ohno, our editorialist.

A Warning against "Premature Deindustrialization"

The recent years have seen active debates on the industrialization prospects of developing countries in the era of digitalization. For example, Professor Dani Rodrik of Harvard University has warned of a risk of "premature deindustrialization"—characterized by the shrinking shares of manufacturing in total output and employment and by the shift towards the service sector without a proper experience of industrialization—that has been observed in many parts of the developing world, including Latin America and Sub-Saharan African countries since around the 1990s. While recognizing the historical importance of industrialization in "creating modern states and democratic politics," Professor Rodrik argues that manufacturing is no longer "the quintessential escalator for developing economies" in the 21st century. He also discusses that service industries, like information and technology (IT) and finance, are less likely than manufacturing to create jobs for unskilled labor in countries in the early stages of development because they require more advanced skills.

By contrast, Professor Jeffrey D. Sachs of Columbia University has a more optimistic view. In the future, labor-intensive work, such as sewing and assembly line work, will be replaced by robot and artificial intelligence (AI) operations, leading to reduced demand for unskilled labor and an adverse impact on employment in developing countries. At the same time, this change has the potential to create new growth sectors. The digital revolution will make the major sectors of the economy more capital intensive—such as agriculture, mining, renewal energy, tourism, telecommunications services, medicine, education and art—and will increase their productivity. As a result, it will contribute to further development and improved standards of living in developing countries in the medium to longer run. From this point of view, Professor Sachs argues that the international community and private sector should proactively finance and transfer digital skills and technologies to developing countries so that they could build the digital-based industries, skills, and jobs of the future.

Need for Region- and Country-specific Industrialization Strategies

In this way, both pessimism and optimism coexist over risks and chances of a digital revolution. On the one hand, it may accelerate deindustrialization while creating IT-service based, new industries and jobs on the other. One common trait, however, is that these

debates remain general, lacking region/country-specific details. They also assume that the East Asian development experiences are no longer useful.

Contrary to them, Professor Joseph E. Stiglitz of Columbia University makes an interesting point in his recent book resulting from his joint research project with the Japan International Cooperation Agency (JICA) Research Institute, entitled *The Quality of Growth in Africa*. While recognizing that if AI and other labor-replacing technologies evolve in Africa in the future, there will be less chances of creating jobs in labor-intensive manufacturing industries as East Asia experienced, Professor Stiglitz poses the following questions:

"Whether the increasing population in Africa will be a 'demographic bonus' or 'demographic onus' depends on employment. Since a high unemployment rate among young people could lead to political instability, it is vital to create productive jobs through structural transformation. There is a need to consider new development strategies that meet the realities of Africa, such as industrializing agriculture and taking wider-reaching measures to promote industries, including the service and resource-related sectors. In doing this, it is important to review the roles and functions performed by East Asian governments—such as pragmatism, the promotion of exports, manufacturing and agriculture, as well as domestic investment—from today's point of view, rather than dismissing the East Asian experiences altogether. There should be East Asian experiences from which Africans can learn something even now."

My opinion is close to this. As discussed below, Asia and Africa are markedly different in terms of their demographic transition and stages of industrial development. Therefore, it is necessary to formulate concrete industrial development strategies in the era of digitalization, taking into account the realities of different countries and regions, irrespective of traditional or new industries. Furthermore, it should be noted that this kind of real-sector orientation is the approach adopted by Japan and other East Asian countries.

Asia Should Make Aging a "Silver Dividend"

Asian Economic Integration Report 2019/2020: Demographic Change, Productivity, and the Role of Technology issued by the Asian Development Bank (ADB) in November 2019 deserves attention because it analyzes the role of digital technologies in helping aging Asian populations to resolve two major challenges—namely, industrial upgrading and establishing a welfare society. The populations of Asian countries, most notably Japan, are aging at an accelerated pace. East Asia has 235 million elderly people aged 65 or over right now and the number is projected to have doubled by 2050. Population is aging even in Vietnam and Indonesia, let alone South Korea, China and Thailand.

Deindustrialization may not cause any serious impact on middle-income countries in Asia, which already have a certain level of industrial accumulations. Nevertheless, as suggested by economic policies and visions, such as "China Manufacturing 2025," "Thailand 4.0" and "Indonesia 4.0," industrial upgrading using digital technologies is a pressing task for each of these countries. They are now faced with a two-fold challenge: firstly, to overcome the "middle income trap" and secondly to establish effective social welfare systems (for pensions, medical care, elderly nursing care, etc.). Even Japan, which was already a developed country when its birthrate began to fall, resulting in a rapidly aging population, is now struggling to allocate necessary financial resources for, and improve, its social security services. This indicates that even Asian countries which enjoy their demographic bonus now are required to start planning immediately how they should deal with their aging populations in the future.

Under such circumstances, the above ADB report prescribes five types of technologies that could contribute to improved productivity and quality of life from the perspective of taking advantage of the "silver dividend" (the potential positive effects of an aging society). These

are technologies that: 1) substitute for labor and skills, 2) complement labor and skills, 3) aid education, skills development, and lifelong learning, 4) better match workers with jobs and tasks, and 5) extend healthy life and overall life expectancy.

Africa Should Make the Most of Its "Youth Dividend"

In the African context, by contrast, it is the "youth dividend" (potential positive effects of a younger society with many young people) that the region should take advantage of. The African population, which is about 1.2 billion now, is expected to have doubled to 2.5 billion by 2050, accounting for one-fourth of the total population of the world. It is projected that 60% of the African population will be young people aged 25 or under and that 10–12 million youth will join the labor market every year in the region. Therefore, it is a critically important policy challenge to create opportunities for productive employment for African youth and implement necessary measures for industrial development, skill and human resource development to achieve the objective. If digitalization gets rid of labor-intensive jobs and accelerates Africa's de-industrialization, the region will face serious consequences.

Importance of a Local Perspective

The introduction of smartphone- and tablet-based educational, medical, agricultural, financial and other services has brought radical innovation to the approaches to solving social problems faced by developing countries. Nevertheless, people in developing countries being able to benefit from such services as users is one thing, but respective countries being able to sustainably produce high value-added industries and productive employment opportunities is totally another.

How digitalization impacts industrial development depends on the region- and country-specific conditions such as the level of industrial accumulation, demographics, labor productivity and skill development. Competition between "robots and AI versus humans" would be an oversimplification. Digital technologies have different roles to play in respective industries and types of business, and even in different tasks within the same types of business. In my opinion, it is important to strengthen local perspectives and formulate country-specific industrial development strategies, while paying attention to the general trends of global development. There is ample scope for the Japanese public and private sectors, which are good at a real-sector approach, to contribute to make a difference.

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