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The need for the South's pre-emptive information and communication technology (ICT) education policies and the potential for educational partnerships between Europe and the South

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TITLE: The need for the South's pre-emptive information and communication technology (ICT) education policies and the potential for educational partnerships between Europe and the South]

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I. INTRODUCTION

All core indicators measuring Information, Communication and Telecommunications (ICT), developed by the International Telecommunication Union, indicate the digital divide between the global North and the South.¹ These indicators include ICT infrastructure and access, ICT sector and trade in ICT goods, ICT in education and ICT in government. Regarding all these aspects, there is no single variable where the gap between the North and South is reverse, meaning the South being at the front stage. The reality is the digital divide is severe, urging for multi-dimensional actions in order to narrow the digital divide. As the world economy is getting transformed into knowledge-based economy which requires the heavier usage and reliance of ICT products and innovation, the current digital divide is at danger of becoming worse.

While there might be other innovative ways, this paper focuses on a traditional methodology of catching-up or closing any sort of gap between the global North and the South. Ultimately, as an initiating way to explore the possibilities to close the digital gap between the developed and the developing, this paper raises the role of education. Unfortunately, as a preliminary effort, this paper does not aim to specify which aspect of the digital divide the paper aims to focus as a dependent variable. Rather, it broadly opens its space for such sort of the digital divide. Accordingly, the education role appears as broad as possible in this paper as crucial interventions for development which includes the South's capabilities to produce ICT-related goods and to utilize such goods in the way of becoming front-runners in the upcoming era of knowledge-based world.

The rest of this paper is structured as followings. Firstly, it overviews different economic models of education in relation to development. Then, the next section references to the South Korean case where education intervention has been documented essential and effective for its late and catching-up industrialization. Thirdly, it examines the current structure of Official Development Assistance (ODA) and explores how to improve its effectiveness in the way of closing the digital divide in multi-aspects.

II. ECONOMIC MODELS OF EDUCATION

Robeyns (2006) provides the scholarly overview on the three main economic models of education: human capital, rights-based discourse and capability approach. This section,

¹ See the ITU website on statistics for time-series values on various ICT indicators.
<http://www.itu.int/en/ITU-D/Statistics/Pages/coreindicators/default.aspx>

based on her overview, describes what each model is and its limitations. Their relation to development follows each overview of model.

<1. Human Capital>

The first theory, human capital (Becker 1962 and Schultz 1961), conceptualizes education as human capital, which includes the skills and knowledge learnt through education. This set is what enables individuals to get a job and earn income according to their productivity. Therefore, in summation, human capital positions education to be an instrument for income earning and economic development at the macro level.

Due to its mere instrumentality of education, Robeyns (2006) finds limitations mainly in understanding the fruits of education. It does not consider “cultural, social and non-material dimensions of life (p. 72)” that are also crucial in running one’s life and a country at the holistic level. Human beings matter only if their acquired skills and knowledge contribute to income generation and economic development, respectively for the micro and macro levels.

In development studies, this concept of human capital has been praised as a pivotal factor for economic development in the East Asian Miracle report by the World Bank in 1993. This report was to study eight countries in East Asia, which grew faster than all other parts of the world.

“Since 1960, the HPAEs have grown more than twice as fast as the rest of East Asia, roughly three times as fast as Latin America and South Asia, and five times faster than Sub-Saharan Africa. They also significantly outperformed the industrial economies and the oil-rich Middle East-North Africa region. Between 1960 and 1985, real income per capita increased more than four times in Japan and the Four Tigers and more than doubled in the Southeast Asian NEs (see figure 2) (World Bank 1993: p.2).”

Furthermore, the report also notes the active role of each government in this education fostering. “Governments built on this base by focusing education spending on the lower grades; first by providing universal primary education, later by increasing the availability of secondary education (p.15).” This is evident in the South Korean case where the secondary school enrolment rate jumped from 35 to 88 per cent from 1965 to 1987. Additionally, South Korea, with its universal primary education policy, quickly reached the full enrolment for primary level in the early 1970s.

<2. Rights-Based Discourse>

The second economic model of education Robeyns (2006) overviews is the rights-based discourse on education, mainly coming from international organizations and activists who advocate education for every single child in the world as a human right. Examples such as “the Education for All (EFA) by UNESCO” fall into this framework. Simply, in this framework, education is a human right that should be guaranteed to all. The South Korean case continues to show its relevance from its 60s policy to universalize the primary education for all in the early phase of industrialization, regardless of the rural and urban areas, gender groups and socio-economic backgrounds.

While this framework can be perceived to acknowledge education's intrinsic values, it also has shortfalls, as analysed by Robeyns (2006).

Firstly, it is overtly rhetorical as it is the top-down and deductive approach to education. (Unterhalter 2003b: p.8, Recited from Robeyns 2006). Therefore, this is insensitive to local context as an international movement, resulting in low levels of delivery or meeting the goals.

“without precisely specifying who carries which duty to make sure that these targets are met, or that these rights are effectively granted. By now we have a long history of such declarations and other statements of good intentions that have not led to the promised outcomes, and many people have become quite sceptical about such grand statements (Robeyns 2006: p.76).”

Secondly, Robeyns (2006) pinpoints the danger that this rights-based discourse reduces all rights to merely legal rights. There are varieties of rights such as moral rights.

Thirdly, this framework is easily to have too much emphasis on the role of the government. The example Robeyns describes is that after announcing every child should have the right to education, there is no further processes getting ensured most of times. There are more than acknowledging the rights, such as implementing and enforcing policies.

<3. Capability Approach>

The third main economic model of education Robeyns (2006) reviews is the Capability Approach (CA). In this approach, the focus of development is to expand freedoms, meaning developing capabilities that are the abilities to acquire beings and doings that people have reason to value. In this approach, education becomes both means and ends with intrinsic and instrumental values.

Capabilities are the abilities to achieve certain things and being that individuals have reason to value, according to Sen (1999). Therefore, education itself is a capability and it is also an expansion of other capabilities such as having a job and income. In this framework, it is important to note that no one dimension becomes the pivotal of analysis or evaluation.

In relation to development, the CA provides a flexible space where the national governments and individuals enjoy their own space of framing the view and direction. In this way, this can be called a more democratic framework to understand or shape any educational policy. Furthermore, in contrast to the first two models which emphasize enrolment rates as a must, the capability approach does not rely upon such variable as an evaluative indicator. Rather, it also includes looking at the comprehensive use of the enrolment for broad capabilities sets such as finding a job or becoming an educated person who listens to different views in order to have one's own opinion as a citizen.

III. SOUTH KOREAN CASE WITH FOCUS ON ITS EDUCATIONAL SPACE

Particularly in relation to developing technology and industrialization, education emerges as a crucial policy intervention. Before illustrating the South Korean case, it is worth noting the broad two frameworks Nelson and Pack (1996) provides as the frameworks to situate education's role in development and industrialization. In order to explain the exemplary growth of some countries in Asia during the mid-late twentieth century, Nelson and Pack differentiates two frameworks where the role of education gets incorporated. Their two explanations are classified into "accumulation" versus "assimilation"

Accumulation is just like the economic model of human capital, which is "neoclassical in spirit, stresses the role of physical and human capital investment (Lall and Teubal 1998: p.1369)," whereas the assimilation is "evolutionary, stresses the centrality of learning in identifying, adapting and operating imported technologies (Lall and Teubal 1998: p.1369)". As Asian tigers were the late learners of existing technologies, the dynamic picture of the assimilation argument worked the best and the learning of technology was at the centre.

This can be claimed that the assimilation implies the role of education policy interventions, not assuming their natural development and functioning, as proven in many cases of Asian countries' industrialization via the heavy involvement of the state.

Supporting the assimilation argument, Nelson and Pack make the case that "Assimilation theories emphasize the significance of learning in making investments successful and efficient in contrast to the accumulation theories assuming automatic learning with investment (Lall and Teubal 1998: p.1369)." Following upon Nelson and Pack's classification of two accumulation and assimilation, Law and Teubal (1998) acknowledge education as one of the selected policy interventions in the East Asian industrialization case.

As one of the East Asian models, South Korea's industrialization serves a good example where the state's intervention worked favourably and successfully for its economic development. While the emphasis would be on a case of a higher education institute in science and technology, Korea Polytechnic University, this section firstly reviews the different educational interventions over different phases of South Korea's industrialization.

As shown in Table 1, in the 1960s, when the country was developing light-industries, the education policy was focusing on the legislation of compulsory primary education. In 1970s, when the country began to nurture heavy chemical industries, the need for technical experts became imminent and the country adequately began to provide vocational training and establish science and technology education and research institutions. Then, in the following decades including the 80s and 90s, higher education opportunities expanded. Recently, as the country began to transfer to knowledge-based economy following upon the

worldwide phenomena, the government adopted innovation of development of human resources and college education became more flexible favorably towards the demands of enterprises.

In this South Korean case, it is the key to catch the learning of technology was able to take place through its educational interventions such as the establishment of science and technology higher education institutes. In a different perspective, science and technology higher education institute is a reflection of dynamic learning of technology for economic development, strengthening the linkage between educational policies in technology and economic development.

The following bullet-points in Table 2 are from the Knowledge Sharing Programme report, Technical Engineering Education Model of Korea Polytechnic University (KPU), by Seung Kwan Jang.

Table 2

- Process of Establishment of Korea Polytechnic University
- In the early 1990s, in Korea, the quantity and quality of demand for manpower were estranged from each other due to the educational system lacking the ability to cope with the process of rapid industrialization, and Korea was faced with serious shortages of manpower as the industry entered into a structural correction phase. This problem of order imbalance of industrial technical manpower can be categorized largely into three issues.
- First, there was an oversupply of highly educated individuals, but there was shortage of high-class technical manpower in the special research and technology field, which is the pivot of industrial technical development.
- Second, as the correction of industrial structure progressed, the relative employment instability such as the occurrence of unemployment in some declining industries increased, and there was an extreme shortage of production workers including technicians in some industries such as textile, nonferrous metals and so on.
- Third, the issue of the level of quality of industrial manpower stood out as a difficulty in industrial development which is as big as the issue of quantity of supply and demand.
- Korea Polytechnic University places the essential point in the solution of these problems and focuses on substantially contributing to the industrial settings by converting the traditional educational system centering on theories into an educational system centering on experiments and practice and also by strengthening the system of industrial-educational cooperation.
- For the method of education, Korea Polytechnic University avoided the education focusing on attendance for the method of class and let the students grow the ability to adapt to the held by conducting unsupervised learning which enables them to perform experiments, practices and selection, and completion of graduation projects for themselves centering on practices. The internship practice, that makes the circulation of held practice (in which students participate in the held with their own tasks to solve in the held in order to achieve the purpose of education), makes reeducation and employment possible.

- Currently, many colleges and universities at home and abroad are visiting Korea Polytechnic University to benchmark the characterized educational system based on industrial-educational cooperation of the university, and the university is receiving the requests for the establishment of the industrial technical university model from overseas, and various cooperation programs are being promoted for the development of education in industrial-educational cooperation in foreign countries.

Source: KSP report, Technical Engineering Education Model of Korea Polytechnic University (KPU) by Seung Kwan Jang in 2012

IV. OFFICIAL DEVELOPMENT ASSISTANCE ON EDUCATION

This section summarizes the current ODA problems and concludes with possible ways to innovate the ODA spending. This section heavily cites the work by Heyneman and Lee (2016) who research the ways international organizations spend ODA on education.

Largely, there are three problems in the current ODA structure: firstly, the institutions are embedded in imbalance and overlapping; secondly, institutions themselves are weak within each country with respect to framing or implementing educational policies; lastly, the funding itself is limited in quantity and quality.

Firstly, Heyneman and Lee (2016) argue the ODA on education comes from the generic problem of the international organizations' governance structures.

“There is both imbalance and duplication in the mandates of the many institutions involved in education aid. Some have mandates covering only the wealthier parts of the world (such as OECD) while others have regional mandates in Africa, Asia and Latin America, creating funding imbalances that do not necessarily respond to areas of need. Still other organizations, such as UNESCO, have worldwide mandates, but are burdened by weak governance and a disconnect between the few member states that pay for the organization and the many others that vote on a one-vote-per-country basis on how the budget is allocated. This disconnect between those who pay and those who benefit makes it difficult to set priorities or maintain professional standards (Heyneman and Lee 2016: p.14).”

The second problem Heyneman and Lee discuss is the weakened domestic institutions: foreign aid can actually weaken domestic institutions (Heyneman 2006, Recited from Heyneman and Lee 2016). This area is crucial as the strength in this regard has been claimed to be the rationale behind South Korea's success in utilizing foreign aid for its way of industrialization (Kim 2011).

“In the 1960s, it was common to suggest that local authorities did not have the technical experience to make complex policy decisions. Today, however, such claims of local incapacity are not as viable. Local experts are perfectly capable of making policy decisions, yet their development is often handicapped by the tendency to rely

on international authorities and foreign consultants often have little understanding of the national contexts (Heyneman and Lee 2016: p.14)."

Therefore, there is little space for domestic institutions to play a role whereas context-specific factors that these domestic institutions are the best agency for exploring are crucial in drawing any decisions.

Lastly, Heyneman and Lee point funding shortfalls and aid volatility as a problem with education aid. Its volume and concentration is the main problematic aspect.

To illustrate, they list that "the total of UNESCO budget of US\$989 million⁵ is about one-half the budget of an American research university (Heyneman, 2011a). Though the World Bank allocates 20 times this amount to education programmes each year, the portion of loans it allocates to education is only 4 per cent, a level no higher than it was 20 years ago. In addition to being insufficient, education aid varies in parallel fashion with domestic priorities and military and commercial interests (Heyneman and Lee 2016: p.14)."

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As an alternative set of action in response to the problems that the current ODA structure has, Heyneman and Lee (2016) continue to provide some innovative solutions to implement. "Broadening the scope of education aid beyond the current fixation on basic education. Development assistance agencies need to take a leadership position with respect to articulating a diversity of educational priorities (Heyneman and Lee 2016: p.17)."

Subsequently, although the UNESCO's Science and Technology for gender equality has work going into the developing countries, its impact is too minimal to make an argument that the ODA deals with particularly the area of science and technology, a necessary basis for educational policies in narrowing the digital divide. Therefore, it is urgent to develop such ODA programs and projects in the way of respecting domestic institutions and creating space for recipient governments to engage themselves equally as partners of ODA. In this way, the educational policies with the ODA can be harmoniously calculated and implemented with the rest of domestic development directions.

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