

Borrowing from the World Bank for Education: Lessons from Korea and Mexico

Kye Woo LEE*

Hankuk University of Foreign Studies

Abstract

By comparative static analyses, this paper tests the hypothesis that greater educational investment in Korea than in other developing countries led to the greater contribution to rapid economic growth in Korea during the 1960s-1990s. The empirical data do not support the hypothesis. No greater investment in education, including borrowings from the World Bank for education, was made in Korea than in other developing countries with the same level of per capita income. This paper therefore investigates whether the investment in education in Korea was more efficient than in other developing countries at the same level of development during the period observed. This investigation was made by comparing the characteristics of World Bank educational loans/credits for Korea and Mexico, respectively. The results do reveal significant differences between the two countries in several aspects and lend some lessons for both lenders and borrowers of educational development loans.

Key Words: official development assistance, investment in education, educational loans, economic growth, aid effectiveness, World Bank, Korea, Mexico

I. INTRODUCTION

1.1 Disparate Rates of Economic Growth

The Republic of Korea's economic growth experience during the 1960s-1990s was impressive. Robert Lucas, Jr., (1993) the Nobel Prize winner in economics, stated: "Never before have the lives of so many people undergone so rapid an improvement in one generation." The Korean economy grew 8.6% per year during the 1960s, 9.5% per year during the 1970s, and 9.6% per year during the 1980s. These growth rates compare favorably with other developing countries. For example, Mexico grew only 7.2% per year during the 1960s, 5.2% per year during the 1970s, and 1.2% per year during the 1980s (Jaspersen 1997).

* The author gratefully acknowledges the financial support provided by the Korea Educational Development Institute for this study.

1.2 Disparate Degrees of Education's Contribution to Economic Growth

Studies show that Korea made special efforts to invest in people, and that investment in education made special contributions to the economic growth of Korea (Harbison and Myers 1964, Farrell 1974, McGinn et al.1980, Lee 1983, Barro 1991, Ito and Kruger 1995, Park 2000, Amsden 2002, McMahan 2002, Suh and Chen 2007, Eichengreen et al. 2009). Those studies, which applied the growth accounting technique of Denison (1967) and Schultz (1961), reveal that educational expenditures contributed to economic growth of Korea on average at 8.2%. Except the study done by K. S. Kim (1983), all studies indicate that the extent of the contribution made by education to GNP was greater than the proportion of educational expenditures in GNP (about 3% to 4 %) (Park 2000) (Table 1).

In particular, Park's study, which follows the Chavas and Cox (1992) method to overcome the shortcomings of the growth accounting technique, found that during the period 1969-1996 the internal rate of return of the educational loans/credits that the Korean government obtained from foreign aid agencies were as high as 5,115%. While the growth accounting technique assumes that educational investment affects the economic growth of the same year only, the cost-benefit approach of Park's study takes into account the long-term effects of educational investment on economic growth, which enable the internal growth of the economy, just as scientific research and development do (Griliches 1964, Lucas 1988, Romer, 1986, 1990).

Table 1. Contribution of Education to Economic Growth in Korea (%)

Researchers	Contribution (%)	Study period	Study Method
Bae, J.K. (1968)	12.6	1957-1960	Denison
Lee, Y.K (1971)	14.6	1962-1968	Schultz
Tolley (1973)	5.0	1962-63;1968-69	Denison
Bae, J.K. (1978)	11.7	1960-1974	Denison
Kim, Y.B et al (1980)	7.8	1960-74	Denison
Song, W.S. (1981)	3.5	1955-1979	Denison
Kim, K.S. (1983)	0.4	1963-1981	Denison
Kim, Y.C. et al(1983)	5.0	1963-1981	Denison
Lee, S.K. (1989)	13.5	1975-1987	Denison
Average	8.2		
Park, E.W. (2000)	5,115*	1969-1996	Chavas and Cox

*rate of return

Source: Park (2000)

McMahon's empirical study (2002) indicates that during the period 1965-1990 the investment in education, especially in secondary education, by Korea and other Asian countries (Thailand, Malaysia, Japan, Indonesia, The Philippines, India, Sri Lanka, Nepal, Singapore) made a greater contribution to per capita income growth than did educational investments made by Latin American countries (Table 2).

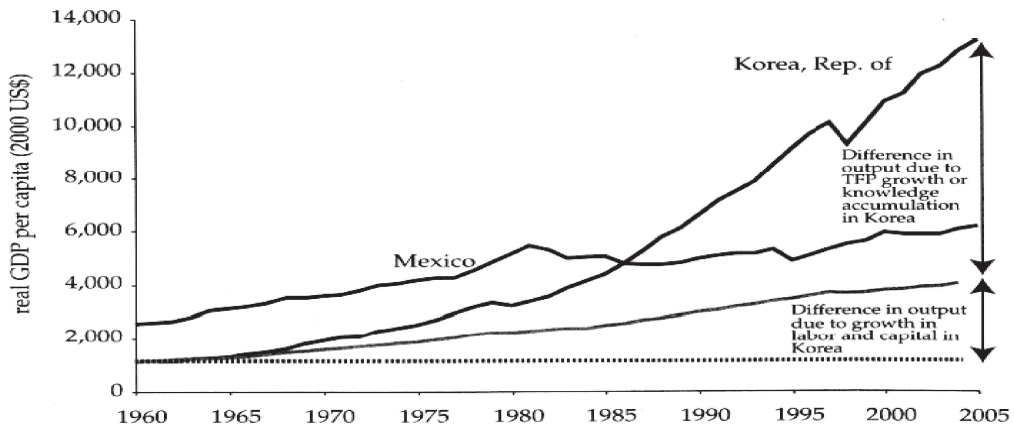
Table 2. Coefficients of Educational Investment in relation to per Capita Income Growth

Dependent variable: Per capita GDP Growth				
Independent variables*(only education variables are shown)	East Asian Countries (including Korea) (1960-1990)		Latin American Countries (including Mexico) (1970-1993)	
	Coefficient	(Standard Deviation)	Coefficient	(Standard deviation)
Primary Education	0.015	(0.886)	0.006	(0.96)
Secondary Education	3.205	(3.27)	-0.004	(-0.26)
Higher Education	-6.94	(-5.01)	0.058	(4.10)

*1960-65 in the case of East Asia; 1960 in the case of Latin America

Source; McMahon (2002)

Suh and Chen's study (2007) shows that the economic growth in Korea was much faster than in other developing countries and that the main factor responsible for the differing rates of growth was not the rapid increases in the labor and capital inputs, but the faster increases in total factor productivity and accumulation of knowledge in Korea (Figure 1). In 1962, per capita income in Korea was only \$87 (in 2000 constant prices); however, it was almost \$3,000 in Mexico. In 2005, although Korea's per capita income reached as high as \$14,000, Mexico's was only about \$6,000. Their study shows that two-thirds of the difference in economic growth can be attributable to the difference in total factor productivity and accumulation of knowledge, which are generally understood as the result of investment in education as well as research and development. Therefore, their findings can be interpreted that the faster economic growth in Korea can be attributable to investment in education.



Source: Author's estimates.

Figure 1. Factors Responsible for the Differing Economic Growth Paths

1.3 Plausible Hypotheses

If the faster economic growth in Korea can be explained by investment in education, then why was education's contribution greater in Korea than in other developing countries, especially Mexico? This paper tries to answer this question. A plausible hypothesis is that either the investment in education in Korea was much greater than in other developing countries like Mexico, or the quality of investment in education was superior to that in other countries.

This paper, first, tests the hypothesis that investment in education in Korea was much greater than in other developing countries. Secondly, the paper tries to find special features or the quality of educational investment in Korea, especially the World Bank loans and credits obtained by the government of Korea for the education and training sector during 1969-1994. Finally, the paper draws some lessons and policy implications that may be applicable to other developing countries that aspire to promote economic growth through investment in education.

II. Was Educational Investment in Korea Greater than in Other Countries?

2.1 Total Public Education Expenditures

To test the hypothesis that Korea made much greater investment in education than other developing countries, total public education expenditures are compared between Korea and comparable developing countries. Some 60 developing countries have been selected as a comparison group on the basis of their per capita income, which was less than \$300 in the 1960s. Korea's per capita income was \$87 in 1962 and never grew higher

than \$300 in the 1960s. Only in 1970, did its per capita income reach \$320. As such, the comparison group included developing countries whose per capita income was greater than that of Korea during the 1960s.

The result of a semi-scientific comparative static analysis shows that Korea's per capita investment in education was not really higher than the comparison group's. During the period 1965-2005, per capita public education expenditures were observed nine times for every five years. Only three times were per capita public education expenditures as a percentage of per capita GNP in Korea higher than in the comparison group (1970, 1985, and 2000). While per capita public education expenditures in Korea as a percentage of per capita GNP during the analysis period were 3.4% on average, it was 3.7% in the comparison group. Especially during the period 1965-1980, the percentage of the per capita public education expenditures in Korea was markedly lower than that in the comparison group. The result of the comparison stands robust even against the argument that education's contribution to economic growth is made over a long period of time with a significant time lag, since our comparison was made over a sufficiently long period of 40 years. Therefore, the hypothesis that Korea's fast economic growth owes to heavy investment in education in Korea cannot be sustained.

Since the comparison made above was based only on public education expenditures, someone may argue that private education expenditures should also be taken into account in the comparison. Especially in recent years aspirations for private education among Koreans are well-known internationally. However, the result of the above comparison would not change much even if private education expenditures were taken into account since private education expenditures during the period 1960s-1980s were negligible (Table 3).

Table 3. Private Education Expenditures as a Share of GNP in Korea (%)

Year	1977	1980	1982	1985	1990	1994	1998	2001
Private tutoring expenses/GNP	0.36	0.96	0.47	0.51	1.39	1.86	3.1	2.7

Source: Gong et al. (2001)

2.2 Total Foreign Assistance for Education

Another way of testing the hypothesis is to look into the distribution of total foreign assistance across different sectors including education. The rationale for looking into the distribution of total foreign assistance is that in many developing countries the most critical inputs for the long term development of the education sector, such as expansion of educational facilities, were financed with foreign assistance. Analysis was made on the proportion of the foreign assistance for the education sector in the total foreign assistance

for all sectors in Korea every year since the establishment of an independent government in 1948. This proportion was on average about 3.4% per year, which was much lower than the education sector's share of the total national budget (10-20% per year) over the period 1950s-1990s. Therefore, it cannot be argued that in the distribution of foreign assistance across sectors, the government of Korea placed a higher priority on the education sector than on other sectors. Moreover, total foreign assistance for the education sector accounted for an important part of total public education expenditures in Korea, ranging between 35-45% during the period 1980-85. However, in the 1990s, the amount of educational assistance was decreased from the 1980s level, and the relative importance of foreign assistance for the education sector declined even more sharply since domestic public education expenditures increased greatly.

2.3 World Bank Loans/Credits for Education

Still another way of testing the hypothesis is to focus on the World Bank loans and credits for the education sector vis-à-vis other sectors. The total foreign assistance for the education sector that the government of Korea received during the period 1950s-1990s amounted to \$1.252 billion, of which 92% or \$1.151 billion was educational loans/credits. Accordingly, the majority of the educational foreign assistance that Korea received was in the form of loans/credits (borrowings with/ without interest). Although the number of education sector projects financed by the World Bank accounted for only 55.4% of total education sector projects financed with external loans/credits, the amount of education sector loans/credits from the World Bank (\$708.3 million) accounted for 62% of total education sector loans/credits that the Korean government received (Table 4). Of the total project costs in the education sector, those projects costs financed partly with the World Bank loans/credits accounted for 83.5% or \$2.243 billion. The second largest supplier of the educational loans/credits following the World Bank was the OECF (Overseas Economic Cooperation Fund of Japan). However, its contributions to the amount of total educational loans/credits and total educational projects costs were only at 21.8% and 11.2%, respectively. Therefore, World Bank loans/credits played a predominant role in investment in the education sector in Korea.

Table 4. The Role of World Bank Loans/Credits for the Education Sector in Korea

(\$ million)	Loan/Credit Amount	Projects Cost	No. of Projects
Total Ed and Trg Loan/Credit (A)	1,151.1	2,685.6	22
Ed and Trg L/C from World Bank (B)	708.3	2242.8	12
Ed and Trg L/C from OECF (Japan) (C)	251.6	251.6	6
(B)/(A)	62%	83.5%	55.4%
(C)/(A)	21.8%	11.2%	27.3%

Source; World Bank website (www.worldbank.org); and Park (2000).

On the basis of the loans/credits data of the World Bank, a comparison was made between Korea and the comparison group regarding the amount of per capita investment in education and relative priority given to the education sector vis-à-vis all other sectors. The amount of per capita investment in education in terms of education sector loans and credits from the World Bank in Korea (\$4.83) was never higher than that in other comparable developing countries (\$5.94). Additionally, the proportion of per capita education sector loans/credits as a percentage of per capita loans/credits for all sectors in Korea (6.8%) was never higher than that in other comparable developing countries (10.2%).

2.4 Conclusions of the Comparisons

The conclusion that we can draw from the three tests conducted above is that during the period 1960s-1990s the investment in the education sector in Korea was never higher than that in other comparable developing countries.

Then, a question arises naturally: how can we reconcile the conclusion that we have obtained from the hypothesis tests conducted in this paper and the emphasis placed on education in the conventional literature. The inference we can make at this juncture is that the major factors responsible for the greater contribution of the education sector to the high economic growth rates in Korea may not be the quantitatively higher investment in education, but the investment strategy in the education sector, namely, the objectives, contents, and priorities of investment in the education sector. In other words, qualitatively the educational investment in Korea must have been consistent with the economic development strategies and policies and must have met the demand of the economic structure at different stages of development, and the contents and priorities of the investment in the education sector was conducive to economic growth. In the ensuing chapters, we will examine the special features of the World Bank loans/credits extended for the education sector in Korea, in particular their objectives, contents, and implementation processes, in order to find some distinctive features responsible for the higher contributions to the rapid economic growth in Korea and to draw some lessons applicable to other developing countries.

This search for the special features of educational investment in Korea will be made through a comparison between Korea and Mexico in their educational investment performance during the period 1960s-1990s. Mexico has been selected for this comparative analysis for simple reasons. Mexico's per capita income was much higher than Korea's in the 1960s. However, both countries became a member of OECD in the 1990s, which is rare among many developing countries. This historical event is indicative of the fact that both countries' growth performance was good. However, the economic growth performance of Korea was better. Therefore, a comparative analysis of the two countries may reveal special features of the educational investment in Korea. Since both countries are located in two different continents, any findings we may obtain through the

comparative analysis may also have the possibility of being generalized across regions.

III. Special Features of World Bank Education Loans/Credits for Korea

Indeed, World Bank loans/credits extended for the education sector in Korea were characterized by the focus and concentration in their objectives, financing sources and application of the funds; and the alignment with the economic development strategy in their contents and priorities. Also, both the World Bank staff and the Korean officials made effective use of the sector analysis practice, sector loans/credits approach, and monitoring and supervision system.

3.1 The Sustained Focus and Concentration of Educational Loans/Credits Projects

The Government of Korea contracted education loans/credits continuously during the period 1969-1999, and there was not a single year in which an education loan or credit was not implemented. Although implementation of an education loan/credit project required 5-7 years on average, the Government contracted another loan or credit as soon as a project was taking off the ground. As such, the number of education loans/credits accumulated during 1982-83 and 1992-95, and in some years about 7-8 education loan/credit projects were implemented simultaneously.

Although the government of Korea continuously contracted education loan/credit projects, it focused on three aspects, i.e., objectives, financing sources, and application of loans/credits. Firstly, the objectives and contents of the education loans/credits were consistently concentrated. A total of 12 education loans/credits contracted with the World Bank can be divided into two periods in terms of the objectives and contents. During the first period (1969-1977), the four World Bank loans/credits projects focused on the expansion and improvement of middle level occupational education and training programs to foster skilled workers and technicians. During the second period (1980- 1994), the eight World Bank education loan/credit projects concentrated on the expansion and improvement of tertiary level science and engineering education and training programs to foster professional scientists and engineers. Those projects were all simple and straight forward in their objectives and contents and therefore were easy to implement efficiently. They were not of the nature requiring collaboration or coordination with several other government agencies. The objectives and content of the projects were of the nature that could be carried out by the Ministry of Education or Labor alone. In many developing countries, the administrative systems and capacities are weak, and personnel less qualified, and therefore, those education projects that require extensive cooperation and coordination between government agencies are likely to experience delays in execution. The education projects in Korea were neither of the nature which is sensitive to the social and political situation or which require establishment of new institutions or complex policies. The loan/credit projects were repetitively designed simply for procurement of

equipment or facilities and training of instructors needed for education and training of skilled workers, technicians or professional scientists or engineers, and therefore could be mostly implemented during the planned implementation period.

Secondly, although the Government borrowed from some other sources during the period 1979-80, 1981-82, and 1986-88, it concentrated borrowing from the World Bank for a total of twelve education loan/credit projects over a period of 25 years (1969-1994). By borrowing repeatedly from the same financing source, the Government could accumulate knowledge and experience regarding the policies and procedural requirements of the lenders, save the costs of trials and errors unavoidable with diverse lending institutions, and take advantage of the same lenders' policies and systems during the preparation and implementation of the projects.

Thirdly, about 10% of the loan/credit proceeds were applied for training of instructors abroad and invitation of foreign experts, and the majority of the loan/credit proceeds were concentrated on procurement of equipment and facilities for workshops and laboratories. Since these goods and services were not available domestically, the loans/credits relieved the foreign exchange constraints which were prevalent in developing countries. Also, procurement of those goods and services was easy to implement, once the procurement procedures were agreed upon with the World Bank.

In sum, the objectives and contents of the loan/credit projects were so simple and straight forward that the implementation of the projects was relatively easy. Also, they were so repetitive that the risks of the project design and implementation were distributed over several projects, and the learning curve of the Korean government officials was moving fast upward.

In contrast with Korea's continued selectivity in the content, sources of education loans, and their applications, Mexico's borrowings for the education sector were characterized by a relatively late start in borrowing, diversification in the content of the projects, numerous usages of loan proceeds, multiple sources of financing, and several agencies for project preparation/execution. While Korea started borrowing from the World Bank for education in 1969, Mexico started only in 1981. Inasmuch as Mexico contracted six loans for technical education and training to foster skilled workers and technicians during the period 1981-1993, there was a continued concentration. However, during the second period 1994-1998, Mexico acquired six loans for diverse purposes: four loans for primary and basic education to foster functional citizens, one loan for strengthening social safety nets, and another loan for higher education financing. The loan proceeds were applied not only to workshops, equipment, and teacher training, but also to diverse usages: supplementary salaries as teacher incentives, teaching materials, students' materials, and complicated institutional and policy reform such as decentralization and skills certification systems, which did not require much foreign exchanges. In addition, Mexico always borrowed from two sources (typically the World Bank and Inter-American Development Bank (IDB)) and also designated two preparation/executing agencies for the same field of education. Consequently, the learning curve of the executing agencies was not moving

fast, and the implementation records were worse during the second period than in the first period with 2 years of implementation delays and more than 12% cost overruns even after the sharp reduction of the project contents and scopes.

3.2 Alignment between Education Loan/Credit Projects and Economic Development Strategies

The objectives and contents of the World Bank loans/credits were closely aligned with the educational and economic development strategies and policies. This is consistent with the Paris Declaration of 2005, which states that in order to improve aid effectiveness, recipient developing countries should first formulate national or economic development strategies, and the aid programs should be aligned with these development strategies or plans (OECD 2005).

3.2.1 The First Period (1969-1977)

The military government that took power in 1961 accorded top priority to economic development and implemented a series of five-year economic development plans. Before 1962, the Korean government had pursued economic development through import-substitution industrialization. However, the new government pursued export-oriented, labor-intensive, light industry-centered industrialization through the first and second five-year economic development plans (1962-1972).

Aligned with this development strategy, the educational policies also focused on the expansion of middle-level education and training programs to meet the projected demand for skilled workers and technicians needed for the implementation of the economic development plans. In the formal education system, expansion of the middle-level education was carried out through the formulation of the curriculum for technical high schools (1963), free admission to secondary schools (1968), equalization policies for secondary education (1974), five-year plan for promotion of science and technology (1967-1972), etc. . In the informal system, the expansion of the middle-level education policies were expressed through the promulgation of a vocational training law for the first time in the history of Korea (1967), opening of the air-correspondence high school (1974), installation of secondary schools annexed to the industrial establishments, and initiation of night programs at high schools (1976), etc. In particular, the secondary technical school system was expanded, attracting 48% of all high school students in 1975 (KEDI 2007). Also, the government judged that the demand for technical manpower could not be met by the expansion of the formal education system. It therefore expanded the non-formal occupational training system, subsidizing or obligating industrial establishments to conduct in-plant training, on the one hand, and operating public vocational and technical training institutes with the levies imposed on enterprises who failed to implement in-plant training programs on the other hand (Lee 2006).

Thanks to the economic and educational development policies, exports rose at 40% per year, and per capita income increased from \$87 to \$320 during the first and second five-year plan period (1962-1971). As the scale of the economy increased, so did the demand for importation of capital goods, and the deficit in the balance of payments also became chronic. Accordingly, development policies shifted to the heavy and chemical industry-centered development while maintaining the export-oriented development strategy during the third and fourth five-year development plans (1972-1981).

As the demand for skilled and technical workers were met through the expansionary education and training policies, the employment structure of the economy also changed. The share of the primary industry's employment decreased from 63% in 1962 to 50% in 1972. The share of secondary industry's employment increased from 7.5% to 14% during the same period. In particular, the employment share of heavy-chemical industry vs. light industry shifted from 33:67 in the 1960s to 39:61 in the 1970s to 49:51 in the 1980s (Kim 2000).

The World Bank loans/credits during the first period focused on the supply of skilled and technical workers. The first and second World Bank loan/credit (1969, 1973) aimed at fostering middle-level skilled and technical workers through the expansion of workshops and laboratories of both technical secondary schools and technical colleges, and the improvement of instructors' capability. Meanwhile, the third and fourth World Bank loans aimed at fostering skilled workers and instructors through provision of workshops and laboratories for public non-formal occupational training institutes. As such, the World Bank loans/credits were closely aligned with the government's economic development strategies.

3.2.2 The Second Period (1980-1994)

During the fifth and sixth five-year development plans period (1982-1991), turning sharply away from the expansionary development strategies of the past 20 years, the government of Korea took the strategy of economic stabilization, equilibrium, efficiency, and liberation. This drastic change in development strategy was caused by both domestic and external factors.

The seventh five-year plan was replaced by the New-Economy five-year plan by President Kim's civilian government, and the development strategy was based even more firmly on the market economy principles. The major policies included tight monetary and inflation control, rationalization of industrial structures, promotion of cutting-edge industries and investments in science and technology, and strengthening national welfare systems such as health insurance and pension systems. In particular, the government took cognizance of the difficulty of continuing with the export promotion on the basis of low wages and took advantage of the sunk-investment in heavy-chemical industries. The government tried to deepen the industrial structure by promoting high value-added, technology-intensive, knowledge and information-intensive, industries such as machinery, ship-building, automotive, electronics, and semiconductors manufacturing. Consequently,

the government focused on investment in science and technology, raising the level of investment in research and development to 2% -2.5% of GNP, and on investment in education, creating new education taxes.

In support of such new economic development strategy, the educational policies also shifted their focus to tertiary education, in particular on the intensification of education and research in science and engineering. These policies were expressed in the quantitative expansion of higher educational institutions including elimination of entrance examinations conducted by each college, expansion of the open university and upgrading of teacher training junior colleges to a college level (1981), establishment of secondary school teachers' college (1984), and qualitative improvements in science and engineering education at all levels of education (1983-1986). The government recognized that improvements at the tertiary level science and engineering education required strengthening of science education at secondary and basic education levels, and fostering creative and inquisitive thinking even at the preprimary education level. In the non-formal education fields, the government shifted emphasis from pre-service training of new entrants to the labor force to in-service or life-long training of already employed workers to improve their productivity and adjust their skills to the fast changing technology and structure of the knowledge-intensive industries (Occupational Training Basic Law 1987, Employment Insurance Law 1995).

The World Bank loans during the second period supported the government's new development strategy. Except the eighth and tenth loans (1992), which were an extension of the non-formal training program for skilled and technical workers of the first period, all six loans received during the second period focused on education and research in science and engineering in secondary and tertiary level educational and research institutions, and aimed at fostering high level professional scientific and engineering education and research. These loan projects were closely linked with the economic development strategy that aimed to restructure industry and educational policies that emphasized education and research in science and engineering at all levels, especially at the tertiary level.

The linkage between the World Bank loans/credits for the education sector and the Government's economic and educational development strategies can be summarized as follows (Table 5).

Table 5. Linkage between World Bank education loans and Government's Development Strategy in Korea (1940s-1990s)

	1945-1959	1960-1979	1980-1999
Economic Development Strategy	-Fostering <u>Economic Basis and Agricultural Economy</u> -Post- Korean War Reconstruction	-Labor Intensive Light Industries & Heavy-Chemical Industries - <u>Export-Oriented Development</u>	- <u>Technology Intensive Knowledge Economy</u> -Growth with <u>Stability</u> -Economic <u>Liberalization</u>

Major Educational Policies	<ul style="list-style-type: none"> -Establishment of Ideals, Systems, and Curricula -<u>Universal Primary Education</u> -Adults <u>Literacy</u> 	<ul style="list-style-type: none"> -<u>Universal Secondary Education</u> -Expansion of <u>Occupational Edu. & Trg.</u> -Teacher Education System Improvement 	<ul style="list-style-type: none"> -<u>Opening of Higher Education</u> -Educational Liberation and Decentralization -<u>Strengthening Science Education</u> -Life-Long Education
Educational Loan Policies	<ul style="list-style-type: none"> -Bilateral technical cooperation grants -Distribution of Textbooks 	<ul style="list-style-type: none"> -Multilateral loans -Specific Investment Loans -Fostering Skilled workers & technicians 	<ul style="list-style-type: none"> -Bilateral/Multilateral Sector loans -Fostering Professional Scientists & engineers -Promotion of R & D -Basic Science Education

Source: Lee (2000) rearranged by the author

In contrast to Korea, it is not easy in Mexico to see a close linkage between national development strategy on the one hand and educational development and loan policies on the other hand (Table 6). Before 1962, although Mexico's economic development strategy was import-substitution industrialization (ISI), the 11-year educational development plan (1958-68) emphasized primary education including massive school construction and textbooks distribution. However, only the first half of the plan (1958-61) was actually implemented.

Starting with 1962, the economic development strategy continued with ISI with emphasis on light manufacturing industries. In congruence with this economic development strategy, the 14-Year Educational Development Plan (1966-81) was announced, but was implemented for only one year. Since then, the expansion of technical secondary education was carried out, but only through 1973. After the first oil-shock in 1974, the government stressed oil and chemical industry development. However, the educational policies stepped up investment in higher education without an adequate supply of skilled workers and technicians first.

During the large part of the 1980s, the Mexican government muddled through the debt crisis without clear development strategies. It was only during the late 1980s that the structural reform for economic stabilization and trade liberalization took off. However, the government's educational policies emphasized the relative expansion of higher education at the expense of primary education. Technical secondary education was also boosted with loans from the World Bank. There was no clear linkage between the economic development plan and the educational loan policies.

In the 1990s, the Mexican government's reformed economic strategy was highlighted with export-oriented development, especially for machinery and service industries supported by the North America Free Trade Agreement in 1994. However, the

government's educational and loan policies during the first half of the 1990s emphasized primary and basic education to compensate for the past neglect, and then higher education during the second half of the decade, skipping secondary education. Again, no consistent linkage was sustained between the national development policies and educational or loan policies.

Table 6. Linkage between World Bank education loans and Government's Development Strategy in Mexico (1960s-1990s)

	1962-1979	1980s	1990s
Economic Development Strategy	- <u>Import- Substitution Industrialization</u> -Since the first oil-shock, <u>oil and heavy chemical</u> industries	- <u>Muddling through</u> the Debt Crisis - <u>Structural Reform</u> starts	- <u>Export-Led</u> Development (NAFTA) - <u>Machinery</u> Industry - <u>Service</u> Industry
Major Educational Policies	-11-Year Education Plan (1958-68) with emphasis on primary education. -14-Year Education Plan(1966-1981) carried out only 1 year -Expansion of <u>secondary education</u> with technical orientation. -Rapid expansion of <u>higher education</u> since 1975	- <u>Sharp Cuts in Primary</u> Education -Expansion of <u>Technical Secondary</u> Education. -Rapid expansion of <u>Higher Education</u>	-Compensatory expansion of <u>Primary education</u> -Educational <u>Decentralization</u>
Educational Loan Policies	-No bilateral or multilateral loans/ credits for education	-Multilateral loans for <u>technical secondary</u> education	-Multilateral loans for <u>primary and basic</u> education - <u>Higher</u> Education Financing Loan

Source: compiled by the author based on Cardoso and Helwege (1997), Birdsall and Jaspersen (1997), and Edwards (1995) and World Bank website (www.worldbank.org)

3.3 Educational Investment Priority and Sequence

To enhance educational investment's contribution to economic growth, it is important to select educational investment projects in line with the economic development stage and strategy. It is more so in particular when the objective of the educational investment is not to satisfy the internal needs of the educational system, but to meet the demand of the economic development strategy since the economic development itself has

stages or an internal sequence (Clark 1949, Lewis 1955, Rostow 1960). The degree of alignment between the economic development strategies and the educational development policies must be reflected in the priorities and sequence of the educational investment in different countries.

The Korean government followed an appropriate sequence or priority of educational investment to enhance its contribution to economic growth, and the World Bank loans/credits supported this investment sequence and priority in the education sector (Figure 2). The government focused on investment in primary education and adult literacy during the 1950s when the government pursued promotion of agricultural production and productivity. It achieved universal primary education (an enrollment rate of 96%) in 1958. This universal primary education provided a sound basis for the heavy investment in the middle level education to foster skilled workers and technicians needed for the promotion of export-oriented light and heavy industries in the 1960s and 1970s (Kwack 2008). This sequence and priority of investment was supported by the four World Bank educational loans/credits for middle level education and resultant universal secondary education during the same period. In the 1980s and 1990s, the Government pursued the technology-intensive knowledge-based economy through investment for the expansion of higher education and improvement of science and engineering education and research. The six World Bank educational loans supported this investment sequence and priority during the same period.

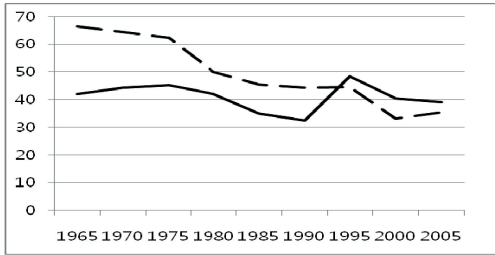
However, Mexico followed an educational investment sequence and priority quite different from Korea (Table 7). Insisting on a balanced investment premise, Mexico has placed priority on investment in the secondary and tertiary levels of education, especially in the tertiary level, to date. As a result, universal primary education was achieved only in the 1990s, compared with the 1950s in Korea, and the enrollment rates at the secondary and tertiary education levels are much lower than in Korea (Figure 3). The supply of well educated and skilled workers needed by industry in Mexico is lagging well behind the situation in Korea. Moreover, wage and income differentials among workers by level of education remain wider than in Korea (Jaspersen 1997).

Table 7. Comparison of the Sequence and Priority of Educational Investment in Korea and Mexico

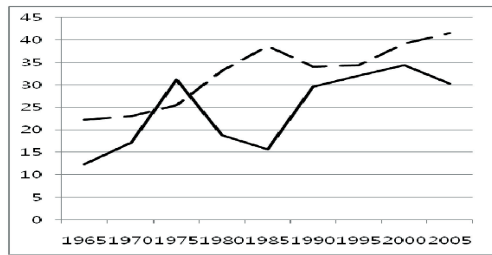
	Korea	Mexico
1960s	Primary/Secondary	Tertiary
1970s	Secondary	Secondary/Tertiary
1980s	Secondary/Tertiary	Tertiary
1990s	Tertiary	Primary/Secondary

Source: Figures 2 and 3

Primary Education

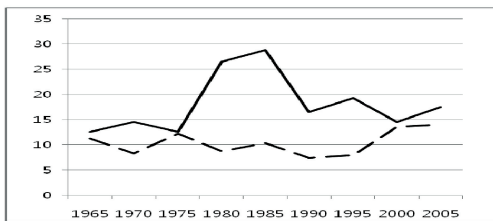


Secondary Education

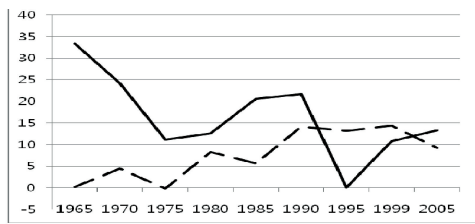


*Solid line: Mexico; Dotted line: Korea

Tertiary Education



Other Education

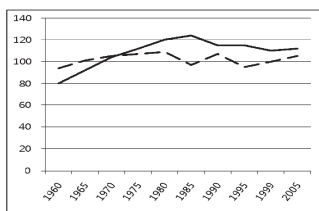


*Solid Line: Mexico; Dotted Line: Korea

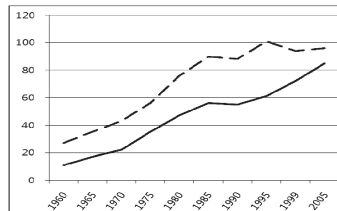
Source: Unesco Statistical Yearbooks

Figure 2. Distribution of Public Education Expenditures by Level in Mexico and Korea (%)

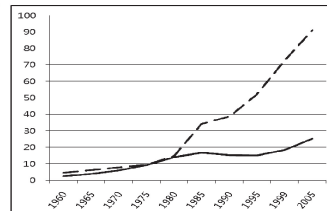
Primary Education



Secondary Education



Tertiary Education



*Solid Line: Mexico; Dotted Line: Korea

Source: Unesco Statistical Yearbooks

Figure 3. The Gross Enrollment Rates at Different Levels in Mexico and Korea (%)

In sum, a comparison between Korea and Mexico in the educational investment sequence and priority shows a sharp contrast. As mentioned before, Mexico's per capita income was much higher than Korea's during the period 1960-1970. Likewise, Mexico's (like many other developing countries') per capita public educational expenditures were higher than Korea's. Therefore, we may infer that the better economic growth performance in Korea during the 1960s-1990s was not due to a greater quantity of educational investment. Rather it was due, to some extent, to its quality of educational investment, i.e., to Korea's educational investment sequence and priority, which were different from those in Mexico and Sub-Saharan African countries (Fredriksen and Tan 2008). The differing educational investment sequence and priority in Korea were supported by a series of World Bank loans and credits during the same period.

3.4 Sector Analyses and Sector Loans

There are at least three additional features in the design and implementation of the World Bank educational loan/credit projects in Korea in comparison with other countries, especially Mexico. They are: first, sector analyses; second, sector loans; and third, periodic monitoring and supervision practice. Firstly, in the 1970s, the government of Korea obtained four educational loans/credits in series and implemented them effectively. This successful implementation record may owe to the commitment and dedication of the Korean officials in charge of the execution of the projects. However, no less contribution was made by the World Bank staff members, who showed deep understanding and offered advice to the Korean officials regarding the education sector issues and government policies on the basis of the sector studies conducted jointly by both Korean and World Bank staff. Without such studies they would have wasted a lot of time in exchanging views on the educational policies and in agreeing on the objectives, contents, and implementation processes of the proposed loan/credit projects. There were three education sector analyses in the 1970s, and one in the 1980s and another three studies in the 1990s. In Mexico, however, there was a dearth of such sector analyses. During the twenty year period 1980s-1990s, there was only one such education sector analysis made as late as in the 1990s (Table 8).

Table 8. Number of Education Sector Analyses and Sector Loans in Korea and Mexico.

	Korea		Mexico	
	Education Sector Analysis	Education Loans (of which, Sector Loans)	Education Sector Analysis	Education Loans (Sector Loans)
1960s	0	1	0	0
1970s	3	3	0	0
1980s	1	2 (2)	0	3
1990s	3	6 (6)	1	9 (1)

Source: World Bank website (www.worldbank.org)

On the basis of the survey of a large number of projects performance evaluations, the World Bank concluded that failures of Bank-financed investment projects were due mostly to the failures at the projects identification and appraisal stages, which were often caused by the weaknesses in the sector analysis (World Bank 1992). Such lessons are important especially for the countries borrowing from the Bank for the first time in the education sector. Sector analyses cover not only issues, policies, and investment priorities, but also institutional and socio-economic-political constraints, and therefore offer a good framework for appraisal and effective implementation of education projects. Moreover, as sector analyses deal with investment priorities in the education sector, they also provide identification of a series of education projects. During the 1970s three education sector analyses enabled the World Bank and Korean officials to agree on the identification of three education projects. During the 1980s one sector analysis led to identification of two education projects, and during the 1990s three sector analyses resulted in six education projects.

Secondly, the highlights of the World Bank education loans in the second period (1980-1999), starting with the fifth education loan, were that the loans were not provided for specific investment projects, which required the contents, scope, locations, costs and other parameters of the projects to be predetermined at appraisal. Rather, those loans were provided for a sector program, which typically includes several specific investment subprojects to be defined and appraised in the course of the implementation of a loan project.

Sector program loans have several merits. First, they normally support a large investment program that can contain several specific investment subprojects as a means of implementing educational sector policies. Therefore, they are normally of great scale and can deliver the borrower a large amount of capital in a short period of time. Second, a sector program loan is flexible and effective since it is provided to implement a set of sector policies or establish some institutions. A lender can monitor and supervise implementation of the project on the basis of an accompanying sector policy paper, which is more flexible and effective than a loan agreement. Also, a borrower does not need to prepare and implement all subprojects at appraisal, but can do so flexibly in the course of the progress of the sector program.

The eight World Bank education loans during the second period in Korea took the form of sector program loans, and they were implemented without many difficulties. The project executing agency at the central level was the same agency (the Ministry of Education), which had implemented four specific investment credits/loans from the same lender repeatedly over the prior ten years, and had accumulated relevant experience, information, and knowledge. Therefore, although it took more time to prepare the sector program loans, it spent less time with decreased implementation cost and was, on balance, efficient (World Bank, 1988). Mexico also obtained a total of 12 education loans from the World Bank during the 1980s and 1990s. However, only one project took the sector

program loan approach, but Mexico experienced more delays and cost overruns than Korea in implementing education loan projects.

Such lessons are consistent with the Paris Declaration for Aid Effectiveness (OECD 2005), which recommended that aid should be provided not in the form of specific investment projects, but by a sector program approach. However, this recommendation should be taken with caution. For a sector program approach, the borrower should first prepare the national economic development strategy with ownership and should then elaborate education sector policies, which would serve as the basis for a sector program loan. Moreover, the borrower should have competent staff members, who have sufficient experience with specific investment projects. For a sector program loan, preparation and implementation of the specific investment subprojects are delegated to executing agencies at a lower tier, and appraisal and supervision of such subprojects should be done by the executing agency at the central level. It is not easy to find such executing agencies with capable and experienced staff in many developing countries. Before starting with the sector program loan approach, accumulating ample experience with several specific investment projects would help build up executing agencies with capable and knowledgeable staff. The Korea's education sector followed this recommendable path with support from the World Bank.

Thirdly, the implementation of the World Bank education loans/credits projects involved monitoring and supervision visits by the World Bank staff at least twice a year. The monitoring and supervision team was composed of specialists in various areas related to project implementation. The government of Korea not only received them passively for their monitoring and supervision, but actively made use of their visits for exchange of opinions and advices over the policies and administration of the education sector in general. Such exchanges contributed to the formulation and change of the policies and development of the education sector. Examples of those policies are conversion of the upper departments of the technical high schools to independent technical junior colleges, improvement of pre-service training systems for technical high school teachers, establishment of college accreditation systems, reinforcement of the research support system of the Science Foundation, introduction and evaluation of the science curriculum at the secondary education level, improvement of the college admission system to be based on the high school performance, establishment of regional science education centers, and strengthening of the information system for the demand and supply of science and engineering professionals.

In the case of Mexico, the relationship between the projects executing agencies and the World Bank supervision teams were always cordial and cooperative. However, the relationship rarely developed into open-minded, professional discussions on the education sector issues and policies.

IV. CONCLUSION AND LESSONS LEARNED

Many studies have noted that economic growth in Korea was much faster than in other developing countries during the 1960s-1990s. They have also stated that the faster economic growth in Korea owes a great deal to intensive investment in education and accumulation of human capital. This paper has conducted a test of the hypothesis that greater investment in education was made in Korea than in other developing countries, but the results do not support the hypothesis. Korea did not make more investment in education on a per capita basis than in other developing countries at the similar level of income. Nor did Korea allocate to the education sector a greater proportion or amount of the loans/credits contracted from abroad in general and the World Bank specifically. Additionally, Korea did not spend more than other developing countries on public education on a per capita basis.

It can be therefore construed that the educational investments in Korea must have been more efficient than in other developing countries. This second hypothesis has also been examined in this paper by comparing the characteristics of educational loans/credits acquired by Korea and Mexico, respectively, from the World Bank during the period 1960s-1990s. The results do reveal significant differences between the two countries in several aspects.

First, the World Bank loans/credits for Korea repeatedly focused and concentrated on the same objectives, contents, and usages of the educational investments and maintained the same source of financing and executing agencies. Consequently, government officials in Korea participated more actively in the preparation and execution of the educational loan projects, and the learning curve of the Korean officials improved more sharply than in Mexico, and the implementation of the loan projects was more efficient in Korea.

Second, although both Korea and Mexico obtained from the World Bank the same number of twelve educational loans, the priorities and sequences of these loans and investments in the education sector were better aligned with the national development plans or strategies at different stages of development in Korea than in Mexico. Moreover, Korea started borrowing from the World Bank for educational investment by more than a decade earlier than Mexico. Therefore, economic growth may have been more enhanced by the educational loans and investments in Korea than in Mexico.

Third, as a prerequisite to the educational loans/credits, Korea collaborated with the World Bank in making a greater number of thorough analyses of the education sector than Mexico did. Such analyses provided not only information on issues, policies, constraints, and framework for appraisal of loan projects, but also opportunities for constructive and professional dialogues between the lender and the borrowers at both the preparation and implementation stages of the educational loan projects. Therefore, a greater number of the sector analyses in Korea may have contributed to the more efficient investment in education, which in turn, promoted faster economic growth in Korea than in Mexico.

Finally, Korea relied more on the sector loans than Mexico in borrowing from

the World Bank for education. The sector loan approach is a useful tool for efficient educational investments and capital transfers. However, it requires a local capacity building as a prerequisite. Korea had more opportunities to develop such local capacities earlier than Mexico by embarking on borrowing from the World Bank for the education sector earlier and more often for the specific investment loans.

In the future, a more rigorous quantitative analysis should be carried out to ascertain whether those characteristics of the World Bank educational loans extended to Korea, in comparison with the World Bank educational loans to Mexico, were really statistically significant factors contributing to faster economic growth in Korea during the 1960s-1990s.

Reference

(In Korean)

- Kwak, BS. (2008). Economic Development and Establishment of Basic Educational System: 1945-1960. A paper presented at the Second Policy Forum of the Analysis of Korea's Educational Development Experience II, Korean Educational Development Institute, Seoul.
- Gong, EB. et al (2001). *A Survey Study of Educational Expenses*, Korean Educational Development Institute, Seoul.
- Kim, KS. (1983) Estimation of Education's Contribution to Economic Growth in Korea, in Korea Educational Development Institute, *Economic Effects of Educational Investment*, Seoul.
- Kim, YH. (2000). *Education and Society in Korea*, Educational Science, Seoul.
- Lee, KW. et al (2007). An Evaluation of Korea's 20-Year Official Development Assistance, *Journal of Korea Development* 29 (2): 42-74.
- Lee, SJ. (2008). *National Development Strategy and Educational Policies*, Korean Model of Educational Development Cooperation, Korean Educational Development Institute, Seoul.
- Korea International Cooperation Agency (2004). *Development Assistance and Cooperation for Korea: Assistance Level, Sectors, and Effectiveness*, Seoul.
- Park, EW. (2000). *An Evaluation of the Educational Loan/Credit Projects*, Ministry of Education Seoul.

(In English)

- Amsden, A.H. (1989). *Asia's Next Giant: South Korea and Late Industrialization*. New York: Oxford University Press.
- Barro, R.J. 1991. "Economic Growth in a Cross Section of Countries." *Quarterly Journal of Economics* 106(2). pp. 407-443.
- Birdsall, N. & Jaspersen F. (1997). *Pathways to Growth: Comparing East Asia and Latin America*, Washington, DC: Johns Hopkins University Press.
- Cardoso, E. & Helwege A. (1997). *Latin America's Economy: Diversity, Trends, and Conflicts*, Cambridge: The MIT Press.
- Chavas, J.P. & Cox, T.L. (1992). "A Nonparametric Analysis of the Influence of Research on

- Agricultural Productivity." *American Journal of Agricultural Economics* 74. pp. 583-591.
- Clark, C. (1949). "Theory of Economic Growth." *Econometrica* 17. Supplement: Report of the Washington Meeting, July. pp. 112-116.
- Denison, E.F. (1967). *Why Growth Rates Differ, Post-War Experience in Nine Western Countries*. Washington, D.C: Brookings Institute.
- Edwards, S. (1995). *Crisis and Reform in Latin America: From Despair to Hope*, New York: Oxford University Press.
- Eichengreen, B., Perkins, D. & Shin, K. (2009). The Growth of the Korean Economy. Paper presented at the Harvard-KDI Conference: Rising to the Challenge: Democratization and Globalization in Korea, October 29-30. Seoul.
- Farrell, J.P. (1974). "National Planning System in Latin America: Their Environment and their Impact." *Educational Planning* 1(1). pp. 20-33.
- Fredriksen, B. & Tan, JP. (ed.). (2008). *An Africa Exploration of the East Asian Education Experience*, Washington, DC.: World Bank.
- Griliches, Z. (1964). "Research Expenditures, Education, and the Aggregate Agricultural Production Function." *American Economic Review*, 54. pp. 961-974.
- Harbison, F.H. & Myers, C.S. (1964). *Education, Manpower and Economic Growth*. New York: McGraw-Hill.
- Ito, T. & Krueger, A.O. (eds.) (1995). *Growth Theories in Light of the East Asian Experience*. Chicago: University of Chicago and London: NBER.
- Jaspersen, F. (1997) Growth of the Latin American and East Asian Economies, in Birdsall, N. & Jaspersen, F. (eds.) *Pathways to Growth: Comparing East Asia and Latin America*, Inter-American Development Bank, Washington, DC.: 57-74.
- KEDI.(2007). *Understanding Korean Education.*" *Education and Korea's Development*. Seoul.
- Lee, KW. (2006). Effectiveness of Government's Occupational Skills Development Strategies for Small and Medium-Scale Enterprises: A Case Study of Korea, *International Journal of Educational Development*, 26 (3): 278-294.
- Lee, KW. (1983). Human Resources Planning in the Republic of Korea: Improving Technical Education and Vocational Training. Staff Working Paper No. 554. Washington, D.C: World Bank.
- Lewis, W. A. (1955). *The Theory of Economic Growth*, London: Allen and Unwin.
- Lucas, R.E. Jr. (1993). Making a Miracle, *Econometrica*, 251-252.
- Lucas, R.E. Jr. (1988). On the Mechanics of Economic Development, *Journal of Monetary Economics* 22: 3-42.
- McGinn, N.F. et al. (1980). *Education and Development in Korea*, Cambridge, Mass.: Harvard University Press.
- McMahon, W.W. (2002). *Education and Development*, New York: Oxford University Press.
- OECD. (2005). Paris Declaration on Aid Effectiveness: Ownership, Harmonization, Alignment, Result, and Mutual Accountability. Paris.
- Romer, P.M. (1990). Endogenous Technological Change, *Journal of Political Economy* 98: S71-S102..

- Romer, P.M. (1986). Increasing Returns and Long-Run Growth, *Journal of Political Economy* 94:1002-10037.
- Rostow, W. W. (1960). *The Stages of Economic Growth: A non-communist manifesto*, Cambridge: Oxford University Press.
- Schultz, T.W. (1961). Education and Economic Growth, in Nelson B. Henry (ed.) *Social Forces Influencing American Education*, University of Chicago: 78-82.
- Suh, JH. & Chen, D. H. C. (eds.) (2007). *Korea as a Knowledge Economy: Evolutionary Process and Lessons Learned*, Korea Development Institute and the World Bank Institute, Washington, DC.: World Bank.
- World Bank (1996). *Implementation Completion Report: Korea: Universities Science and Technology Research Project (Loan 3203)*. Report No. 15754, Washington, DC.
- World Bank (1992). *Project Completion Report: Korea: Program for Science and Technology Education (Loan 2427)*, Report No. 9569, Washington, DC.
- World Bank (1988). *Project Performance Audit Report: Korea: Sector Program on Higher Technical Education (Loan 1800)*, Report No. 7252, Washington, DC.