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KOF Swiss Economic Institute

The KOF Education System Factbook: South Korea

Edition 1, December 2017

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List of Abbreviations

CBS	Credit Bank System
CSAT	College Scholastic Aptitude Test
GCI	Global Competitiveness Index
GII	Global Innovation Index
GDP	Gross Domestic Product
GPA	Grade Point Average
HRD	Korea Human Resources Development Service of Korea
ICT	Information Communication Technology
ISCED	International Standard Classification of Education
KCCI	Korea Chamber of Commerce & Industry
KCCE	Korean Council for College Education
KCUE	Korean Council for University Education
KEDI	Korea Educational Development Institute
KERIS	Korea Education and Research Information Service
KFTA	Korean Federation of Teachers' Associations
KICE	Korea Institute of Curriculum and Evaluation
KLI	Korea Labor Institute
KLIPS	Korean Labor and Income Panel Study
KOF	Swiss Economic Institute
KOPO	Korea Polytechnics
KOREA TECH	Korea University of Technology and Education
KRIVET	Korea Research Institute for Vocational Education and Training
MEST	Ministry of Education, Science and Technology
MOFE	Ministry of Finance and Economy
MOE	Ministry of Education
MOEL	Ministry of Employment and Labor
MOL	Ministry of Labour
MOU	Memorandum of Understanding
MPEA	Metropolitan and Provincial Authorities

NCS	National Competency Standards
NILE	National Institute for Lifelong Education
NOOSR	National Office of Overseas Skills Recognition
NQF	National Qualification Framework
OECD	Organisation for Economic Co-operation and Development
PET	Professional Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
TVET	Technical and Vocational Education and Training
VET	Vocational Education and Training
VPET	Vocational Professional Education and Training
VPETA	Vocational and Professional Education and Training Act
WEF	World Economic Forum
YLMI	Youth Labour Market Index

FOREWORD

In the last years, vocational education and training has received more and more attention. The increased pressure to upgrade the skills of the workforce through an increasingly competitive world economy, or the high youth unemployment rates in the aftermath of the world economic crises putting pressure on politicians to provide solutions could be part of the reason why. In fact, vocational education has been suggested as one major solution to these problems since it provides an education pathway for those who do not continue with tertiary level education and helps upgrading the skills of those who would have started working immediately and would have received some form of on-the-job training.

The increased attention for vocational education and training was in particular perceptible among policy makers. In Europe, the European Commission defined common objectives for the further development of the vocational education and training systems of the European countries for 2020 and an action plan for the upcoming years in the *Bruges Communiqué on enhanced European cooperation in vocational education and training for 2011-2020* (European Commission, 2010). In the United States, Obama mentioned in a speech that he wanted to increase the investment in vocational education and training system of the United States of America (The White House, 2015). But also many other countries worldwide, such as South Korea or Hong Kong, show increased interest in extending their vocational education system.

Worldwide, only a few countries have a well-elaborated and efficient vocational and professional education and training (VPET) system, among these the Swiss VPET system. It is a good example of how an education system can contribute to the successful matching between market demand and supply. It is highly efficient in getting the adolescents into the labour market (7.7% from 2005-2012, compared to the OECD average of 14.6%, (OECD, 2015a)).

Though not many countries have VPET system that is comparable to Switzerland, many have a vocational component in their education system. To provide information about the education systems of other countries, with a special focus on the part of the education system teaching vocational skills, is the major purpose of the KOF Factbooks Education System.

SUMMARY

In the KOF Factbook Education System South Korea, we will describe the vocational system of South Korea in general and in particular refer to factors, which are crucial for the functioning of the system. Among others, these comprise the regulatory framework and the governance of the VPET system, specifying the actors that are involved and which competencies and duties they have. Further, the curriculum development and the actors involved in this process, as well as the financing of the system, etc.

The Factbook is structured as follows. We will refer to the South Korean economy, labor market, and political system in the first part of this Factbook. The second part is dedicated to the description of the entire formal education system. The vocational part of the South Korean education system will be explained in the third part. And finally, the last section gives a perspective about the set of reforms the South Korean education system went through in the past and will face in the future.

EDITING AND ACKNOWLEDGEMENTS

This Factbook is edited by Maria Esther Egg and Johanna Kemper. For the elaboration of the contents, we want to thank Rinaldo Fuss, Yannick Huber and Reto Odermatt. Without you all, the realization of this Factbook would have been impossible!

The KOF Factbook Education System Series has to be regarded as work in progress. The authors do not claim completeness of the information which has been collected carefully and in all conscience. Any suggestions for improvement are highly welcome!

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1. The South Korean Economy and its Political System

One of the main purposes of an education system is to provide the future workforce with the skills needed in the labor market. The particularities of South Korea's economy and labour market, which are important factors for determining the current and future demand for skills, are briefly described in the first part of this Factbook. In addition, this section provides an overview of Macedonia's political system with an emphasis on education politics.

1.1 The South Korean Economy

The Republic of Korea (hereafter South Korea) has a highly developed economy. Along with Hong Kong, Singapore, and Taiwan, it belongs to the so-called Asian Tigers, who experienced a rapid industrialization between the 1960s and the 1990s with annual growth rates of around 7 percent. (World Bank, 2015)

South Korea experienced economic instability and stagnation after its independence from Japan in 1945, which was prolonged by the Korean War with North Korea (1950-1953). Due to the extraordinary growth rates between the 1960's and 1990's, South Korea's GDP increased 40-fold. This development transformed Korea from a relatively poor agrarian economy with a scarce endowment of natural resources and a small domestic market to the currently 13th biggest economy in the world, according to absolute GDP (World Bank, 2015). Thereby, South Korea became the first former aid recipient to join the OECD Development Assistance Committee (OECD, 2014a).

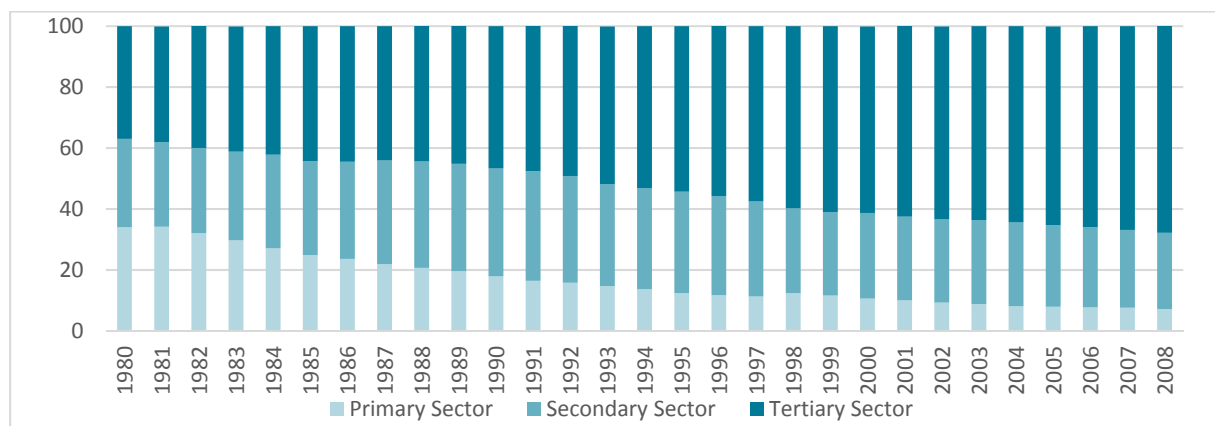
South Korea's rapid development was driven mainly by the government's promotion of savings and investment (such as the import of raw materials and technology at the expense of consumption), the focus on rising exports, as well as a strong emphasis on education (leading to one of the highest university enrolment rates) (CIA, 2014; OECD, 2015a). Shaw and Savada (1990) emphasize the role of human capital formation for South Korea's spectacular progress in modernization and economic growth since the Korean War. They say it is largely due to individuals and their willingness to invest a large amount of resources in their education. In 2014, South Korea had a GDP per capita (in purchasing power parities) of 34,357 US\$, which is slightly below the OECD average of 38,902 US\$. Korea's growth rate of 3.3 percent is one of the highest among the OECD economies, well above the OECD average of 1.8 percent (OECD, 2014a).

However, South Korea faces structural problems, such as high household debt, a decreasing service sector and weak small- and medium-sized enterprises. In addition, South Korea has experienced a rise in income inequality, with 49 percent of the elderly living in relative poverty.

Furthermore, South Korea faces the biggest wage inequality across the compared 22 OECD countries with the highest D9/D1 ratio of 5.8 (United States: 4.8; Japan: 4.1). By contrast, in the Scandinavian countries, wages of workers in the ninth decile are less than three times as high as wages of workers in the first decile (D9/D1 ratio). South Korea's high wage inequality is combined with low skill inequality and large gender wage gap. (OECD, 2015a)

A rapidly aging population, an inflexible labor market, and a heavy reliance on exports (comprising half of the GDP) are some further long-term challenges for South Korea (OECD, 2014a). Regarding industrial development, South Korea experienced large declines between 2000 and 2010 (-11.1%). This number stands out when compared to the growth experienced by other Asian countries with large shares of employment in the industry sector, such as China (27.2% in 2008), Japan (25.3% in 2010), and Malaysia (27% in 2009; OECD, 2012a).

Figure 1: Employment by sector (as % of total employment), 1990-2008



Source: Own figure with data from World Bank (2015).

The structural changes to the economy are also visible when looking at the share of employment across the sectors over time, shown in Figure 1. While around 34 percent of employed people worked in agriculture (primary sector) in 1980, the share was down to 7 percent in 2009. In contrast, the service sector (tertiary sector) increased its share of employment from 37 percent to more than 68 percent in the same period. (World Bank, 2015)

Table 1 shows the shares of value added and employment for the respective sectors in 2013. By 2013, South Korea's share of employment in the different sectors was very similar to the EU-28 average. However, in South Korea, the value added per worker is higher in the secondary sector (manufacturing/industry) and lower in the tertiary sector (service). The difference with regard to the primary sector (agricultural) is small. The high labor productivity levels in South Korea, driven by technology (for example in the automobile industry), reflects that the manufacturing industries have also been the main engines for developing South Korea's economy (Oh et al., 2014).

According to the Global Competitiveness Index (GCI) of the World Economic Forum (WEF), South Korea ranks 26th out of 144 reviewed countries in the 2014-2015 report. South Korea's ranking is comparable with countries such as France (23rd) and China (28th), but is clearly behind the other three Asian Tigers: Singapore (2nd), Hong Kong (7th), and Taiwan (14th). South Korea's index value is characterized by an uneven performance across different dimensions of the index: a relatively bad institutional environment, financial market development, and labor market rigidity are partly compensated for by excellent scores in infrastructure, degree of technological adoption, and education enrolment rates that are among the highest in the world. (WEF, 2014)

Table 1: Value added and employment by sector, 2013

Sector	South Korea: Value added (%)	EU-28: Value added (%)	South Korea: Employment (%)	EU-28: Employment (%)
Primary sector	2.3	1.7	6.1	5.0
Agriculture, hunting and forestry, fishing	2.3	1.7	6.1	5.0
Secondary sector	38.4	24.5	24.4	22.0
Manufacturing, mining and quarrying and other industrial activities	33.5	19.1	17.4	15.6
of which: Manufacturing	31.0	15.3	16.7	14.0
Construction	4.9	5.4	7.0	6.4
Tertiary sector	59.3	73.8	69.5	72.9
Wholesale and retail trade, repairs; hotels and restaurants; transport; information and communication	19.0	23.8	30.9	27.4
Financial intermediation; real estate, renting and business activities	20.8	27.1	5.4	15.8
Public administration, defense, education, health, and other service activities	19.5	22.9	33.3	29.7

Source: Own table with data from Eurostat (2015a; 2015b); OECD (2015a; 2015b).

According to the Global Innovation Index (GII) 2014, South Korea ranks 16th. Although it remains behind Singapore (7th) and Hong Kong (10th), it is still the third most innovative country in Asia. South Korea has risen in the ranking over the last few years by closing the gap between inputs and outputs, thereby improving the innovation efficiency ratio. In addition, South Korea is a top performer among high-income countries with regard to R&D spending growth. South Korea has the second highest number of inventions with international scope and maintains its leading position regarding the human factor that measures the overall quality of education as a human aspect of innovation (Dutta et al. 2014).

1.2 The Labor Market

In the first part of this section, we will describe the general situation on the South Korean labor market. In the second part, we will refer to the youth labor market in particular.

1.2.1 Overview of the South Korean Labor Market

The structural changes to South Korea's economy also led to changes in the workforce profile. With the economy's emphasis on the high-tech and service industries, the share of highly skilled workers has increased in these sectors, while the percentages of skilled and unskilled production workers and skilled agricultural workers have decreased. The majority of Koreans are employed at small and medium-sized firms (about 87 percent). (OECD, 2014a)

In addition, the South Korean labor market is characterized by very high wage inequality (comparable to that of the U.S.), which is further intensified by a gender wage gap, a wide wage dispersion, and a high share of low-wage workers. However, South Korea still maintains low skill inequality. According to the OECD Index of Employment Protection, South Korea has a slightly above average level of employment protection for workers, regarding the protection from individual dismissals (index value of 2.29 versus 2.04 of the OECD average in 2013) (OECD, 2015a).

One of the main particularities of the South Korean labor market is that it is divided into regular and non-regular workers (OECD, 2014a). While the labor market for regular workers is characterized by lifetime employment, low risk of layoffs, good social security and likely trade-union representation, the market for irregular workers, who are often employed only on a temporary basis and not entitled to certain allowances, is less regulated and more competitive (ADB, 2007). The proportion of employees in non-regular jobs has continued to grow during the last two decades, now accounting for about a third of employment.

The labor force participation rate increased between 1970 and 2014, from 48 percent to 64 percent, but is still smaller than the OECD average of 71.2 percent (see Table 2). The increase in the participation rate is due to the growing participation of females in the labor market. The labor force participation rate for South Korean youth (15-24 years), at 26 percent, is significantly lower than the OECD average of 47 percent. Overall, the unemployment rate is relatively low in South Korea (4.6 percent) compared to the OECD average (7.6 percent). However, the youth face an unemployment rate of 33.6 percent, which is more than double the OECD average (15.0 percent). In spite of this high unemployment among young people, 43 percent of small firms indicated a labor shortage in 2011 and another 40 percent expected to face one, mainly due to the lack of qualified job applicants. (OECD, 2015c)

Table 2: Labor force participation rate, unemployment rate by age 2014

	Labor force participation		Unemployment rate	
	South Korea	OECD average	South Korea	OECD average
Total (15-64 years)	64.4	71.2	4.6	7.5
Youth (15-24 years)	26.4	47.2	33.6	15.0
Adults (25-64 years)	72.9	76.2	3.8	7.3

Source: Own table with data from OECD (2015c).

Table 3 shows the labor force participation rate and the unemployment rate in 2013 (both in percentage) by educational attainment. It reveals South Korea's participation rate is more equally distributed across the educational attainments than the OECD average and a very low unemployment rate corresponds to workers with less than upper secondary education. Unlike the OECD average, the South Korean unemployment rate is not a decreasing function of education level.

Table 3: Labor force participation rate, unemployment rate by educational attainment 2013 (persons aged 25-64)

	Labor force participation		Unemployment rate	
	South Korea	OECD average	South Korea	OECD average
Less than upper secondary education	66.3	63.2	2.3	13.0
Upper secondary level education	73.2	79.6	2.8	8.0
Tertiary education	79.7	87.6	2.9	5.3

Source: Own table with data from OECD (2015c).

A challenge for the future labor market in South Korea is the aging of the population accompanied by a continuously falling birth rate. Estimates indicate that if this trend continues, by the year 2050 about 50 percent of the workforce will be 50 years of age or older. This demographic shift could demand a greater expansion of retraining and reskilling of adults at the expense of further education for young people (ADBI, 2007).

1.2.2 The Youth Labor Market

To compare the labor market situation of adolescents across countries, the KOF Swiss Economic Institute developed the KOF Youth Labour Market Index (KOF YLMI) (Renold et al. 2014). The basic idea behind this index is that a single indicator, such as the unemployment rate, does not suffice to describe the youth labor market adequately and to provide enough information for a comprehensive cross-country analysis. To improve the information content of such an analysis and to foster a multi-dimensional approach, the index consists of twelve labor market indicators⁶, which are summarized in four categories.

The first category describes the *activity state* of the young, specifically of those between 15-24 years old, on the labor market. Therein, the adolescents are classified according to whether they are employed, in education or neither of both (unemployed, discouraged and neither in employment nor in education or training, see info box to the right). The category *working conditions* and the corresponding indicators reflect the kind and the quality of jobs of the working youth. The *education* category accounts for the share of adolescents in education and training and for the relevance of and need for their skills on the labor market. The fourth category, *transition smoothness*, shall connect the other three categories by capturing the school-to-work transition phase of the youth. Each indicator of the KOF YLMI ranges from 1 to 7. Thereby, a higher score reflects a more favorable situation on the youth labor market and a more efficient integration of the youth in the labor market.

Dimensions of the KOF YLMI	
Activity state	<ul style="list-style-type: none"> - Unemployment rate - Relaxed unemployment rate¹ - Neither in employment nor in education or training rate (NEET rate)
Working conditions	Rate of adolescents: <ul style="list-style-type: none"> - with a temporary contract - in involuntary part-time work - in jobs with atypical working hours - in work at risk of poverty² Vulnerable unemployment rate ³
Education	<ul style="list-style-type: none"> - Rate of adolescents in formal education and training - Skills mismatch rate
Transition smoothness	<ul style="list-style-type: none"> - Relative unemployment ratio⁴ - Long-term unemployment rate⁵
Source: Renold et al. (2014).	

One of the major drawbacks of the KOF YLMI is the data availability. Often, a category is based on a single indicator or no indicator for that category exists at all. This could make comparisons across countries or groups of countries problematic or even impossible.

¹ It is calculated as the number of unemployed and discouraged workers as a share of the entire labour force. Discouraged workers have given up the search for work (not actively seeking), although they have no job and are currently available for work (also: "involuntary inactive").

² Those who cannot make a decent living out of their earnings, being at risk of poverty as a percentage of the working population.

³ Share of the employed population working on their own account or those working in their family business and thus contributing to the entire family income. Both are less likely to have formal work arrangements and are therefore less protected by labour laws and more exposed to economic risk.

⁴ Is defined as the youth unemployment rate (15-24 years) as a share of the adult unemployment rate (25+). If the youth cohort is affected in the same way than the adult group with respect to unemployment, then the relative unemployment ratio will be equal to one. If the youth are relatively more affected, then the ratio will be bigger than one.

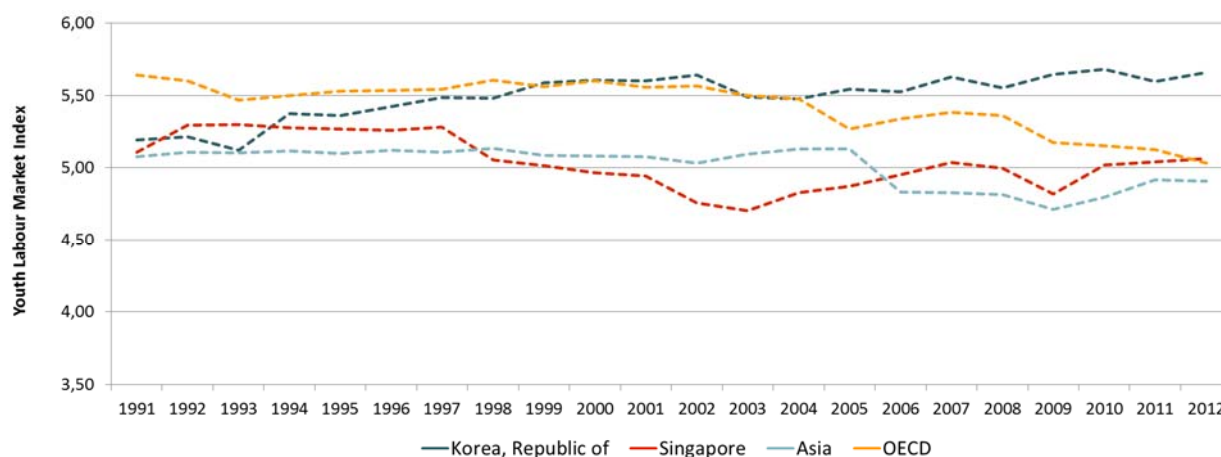
⁵ Those unemployed for more than one year (52 weeks) in the total number of unemployed (according to the ILO definition).

⁶ The data for these indicators are collected from different international institutions and cover up to 178 countries for the time period between 1991 and 2012.

1.2.3 The KOF Youth Labour Market Index (KOF YLMI) for South Korea

In the case of South Korea, only two of the above-mentioned indicators are available: the unemployment rate and the relative unemployment ratio. Therefore, conclusions based on this index are very limited.

Figure 2: Limited KOF YLMI for South Korea, 1991-2012



Source: KOF Swiss Economic Institute, 2016.

Figure 2 shows the evolution of the KOF YLMI for South Korea compared to Singapore, the Asian countries, and the OECD average from 1991 until 2012. In order to make a meaningful cross-country comparison feasible, the indices for Singapore, the Asian countries, and the OECD average have been calculated with the same two indicators (unemployment rate, relative unemployment ratio). Upon comparison of the YLMI over the entire period, it is evident South Korea scores consistently higher than the others from 2000 on. Comparing the YLMI over the entire period, South Korea constantly scored higher than the others since the year 2000. The OECD average scored highest before 2000, and for a short period of time (1992-1993), Singapore also scored higher than South Korea. In conclusion, South Korea had a consistently lower overall unemployment rate than the Asian countries, on average.

1.3 The Political System

Understanding the basics of a country's political system and getting to know the political goals with respect to its education system are crucial points for the understanding of the education system in a broader sense. In the first part, we explain the political system of South Korea in general. The politics and goals regarding the education system will be referred to in the second part.

1.3.1 Overview of South Korea's Political System

South Korea became a democracy in 1987 with the last major constitutional revision. This terminated a period of authoritarian rule with "political backwardness" despite rapid economic

development, and paved the way for direct presidential elections, civilian control over the military, and the growth of civil society. South Korea today is a presidential-representative democratic republic with powers shared between the executive, the legislature, and the judiciary branches. The legislature is based upon a multi-party system in a single-house National Assembly. (Cha & Lee, 2015)

Autonomous power of local governments, which refers broadly to all sub-national governments, is limited. They are a considered part of the executive branch under the control of the central government. Nonetheless, the 16 higher-level (provincial) governments and 34 lower level (municipal) governments have some degree of local autonomy. Despite the direct elections for local chief executives, the central government determines all major policies, such as taxation, resident welfare and services, and personnel management. (Lee, 2015)

The Economist's Democracy Index of 2014 considers South Korea a full democracy, in rank 21st out of 167 countries (Economist, 2015)⁷. South Korea ranks 37th of 167 countries in the Corruption Perception Index in 2015 (Transparency International, 2015). With a score of 55 in the Worldwide Governance Indicator, South Korea is behind the average score of the EU and Western Europe (66 points) but ahead of the average in Asian-Pacific countries (43 points; World Bank, 2014).

1.3.2 Politics and Goals of the Education System

By the 1980s, the centralized Ministry of Education had consolidated most of the control over education from local school boards at the federal level. (MoE; Shaw & Savada, 1990). Since the late 1980s, the president-appointed MoE has been responsible for South Korean education, i.e., it oversees the national school curriculum, is responsible for the administration of schools, allocation of resources, setting of enrolment quotas, certification of schools and teachers, and the development of curriculum. However, with the implementation of the Local Autonomy Law in 1991, a wave of decentralization has moved responsibility for budget planning and major administrative decisions to local authorities such as the Metropolitan and Provincial Offices of Education (MPOE). In recent years, there have also been attempts to decentralize the system in favor of more decision-making at the school level (CIEB, 2015).

Despite decentralization efforts, control over South Korea's education system remains largely with the centralized MoE. Controversies and criticism of this centralization include an ongoing debate over teachers' working conditions. The Korean Teachers Union (KTU) aims to improve working conditions for teachers, but has no legal status (Synott, 2007). Teachers are prohibited

⁷ North Korea is on the 167th position.

from participating in a labor movement or collective action because they are civil servants action (Yu, 1997).

Subsequent workforce-development policies must address the major challenges of South Korea's education system. The demographic shift towards an older workforce will require far-sighted reforms of education and training opportunities in order to meet the change in demand for skills. In addition, there exists a mismatch in terms of labor quality. Survey results show that employer satisfaction of education and training is very low, and skills that college graduates have learned through higher education are insufficient for their work in companies. Therefore, the academically oriented education poorly prepares students for a knowledge-based economy. (ADB, 2007)

2. Formal System of Education

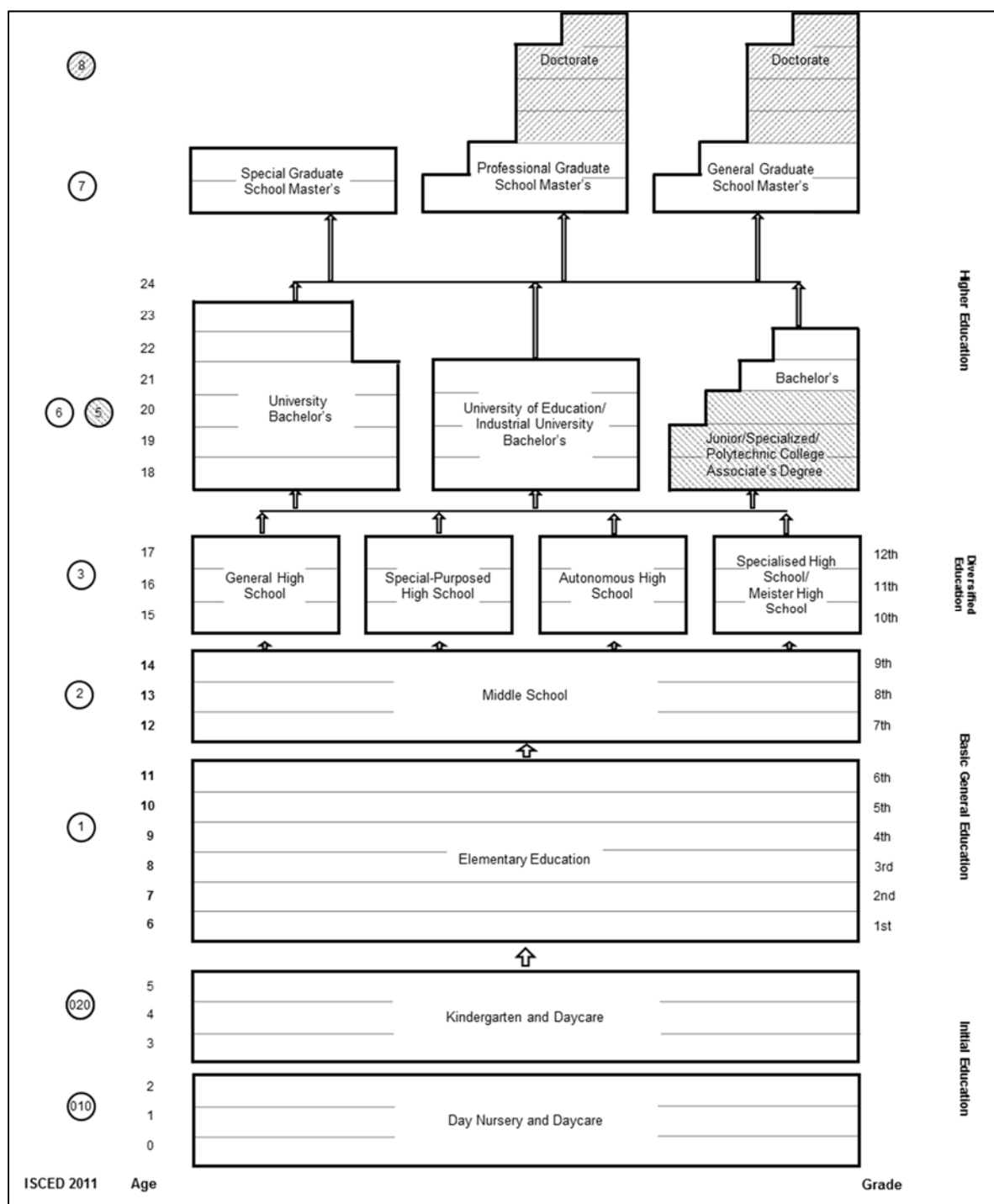
This chapter addresses the education system of South Korea. In addition, this chapter provides the basic framework to integrate the information about the vocational education and training (VET) system of South Korea, which will be explained in Chapter 3. The main language of instruction is Korean and the compulsory part of the education system contains primary and middle school, which includes first through ninth grades.

Figure 3 illustrates the structure of the South Korean education system. After day nursery and kindergarten, elementary education starts at age six and takes six years to complete. It is followed by middle school (lower secondary education), which lasts another three years. Elementary and middle school together make up the basic general education, and are compulsory. Students usually continue with three years of high school (diversified education) that grants access to higher education. (OECD, 2016)

South Korea's education system is characterized by a high share of people who attain tertiary education. From 2000 to 2014, the share of Korean adults who have a tertiary qualification increased by almost 20 percentage points to 43 percent, the fifth largest share among OECD countries (the OECD average is at 33 percent). For the group of 25 to 34 year-olds, South Korea ranks first in tertiary attainment for both men (64 percent) and women (71 percent). (OECD, 2014b)

The sharp increase of educational attainment levels is also reflected in the share of population that has attained upper secondary education. Figure 4 shows that South Korea has the largest population share of 25 to 34 year-olds that have attained upper secondary education among all OECD countries (98 percent). (OECD, 2015d)

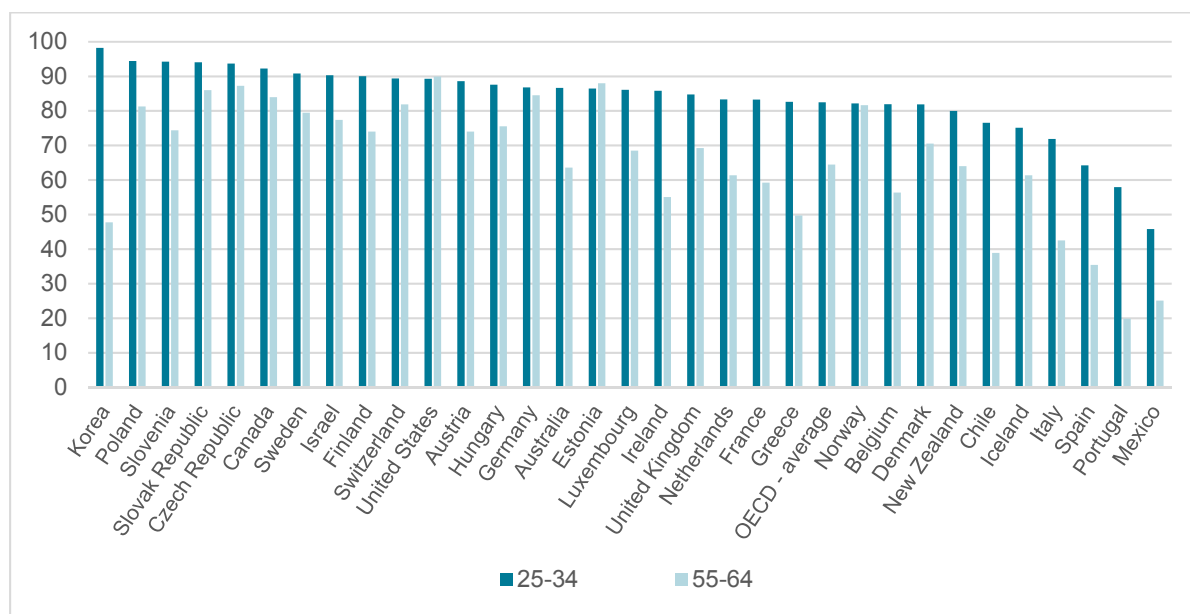
Figure 3: Basic structure of the South Korean education system⁸



Source: Own figure based on OECD (2016).

⁸ The size of the boxes does not coincide with the actual size or importance of the program in the education system.

Figure 4: Upper secondary education completion rates for OECD countries (2012)



Source: OECD (2015d).

Figure 4 displays the high completion rate for the younger generation across all OECD countries. In South Korea, a relatively low share of 55 to 64 year-olds have achieved upper secondary education compared to the OECD-average (48 percent vs. 64 percent). In fact, South Korea depicts the biggest gap between the two age cohorts among the OECD countries. Moreover, only 36 percent of 55 to 64 year-old Korean women hold an upper secondary qualification, and only 9 percent possess a tertiary education degree (the second smallest proportion among the OECD countries). (OECD, 2015d)

Watching the Pisa scores from 2012, Students of South Korea achieved the fifth highest Pisa score average (554; Shanghai-China: 613; Average of OECD countries: 494). (OECD, 2014c)

Park, Jang and Yoon (2014) demonstrate a similar development of the composition of educational attainment by age. The population with college/university and higher degrees rose from 8 percent in 1980 to 36 percent in 2010. This sharp rise in educational attainment is particularly evident among 25-34 year-olds (11 percent in 1980 up to 65 percent in 2010).

The public expenditures for primary up to lower secondary education cover 81 percent of the costs. Contrastingly, tertiary education is mostly privately financed (72 percent in 2011), which is the second largest share of private financing of tertiary education in the OECD. For primary, secondary, and post-secondary educational institutions, private expenditure only reach 19 percent. (OECD, 2014b)

The difference in private investment between primary and higher education is likely attributed to the number of private and public institutions at the different levels. Very few primary schools

are private, whereas over 80 percent of South Korean higher education institutions in 2009 were private. (IQAS, 2009)

2.1 Pre-Primary Education

In South Korea, children usually start pre-primary education in a kindergarten or nursery school at the age of three. Pre-primary education is not part of the formal school system but may soon be compulsory for children. The enrollment rate for pre-primary school is 93 percent, according to the World Bank (2015). The main institution at this level is the kindergarten, which is accompanied by nursery schools, English-speaking nursery schools and private educational play schools (WENR, 2013). Because the education system in South Korea is very competitive, many parents who enroll their children in pre-primary education do so with the expectation that it will give them a competitive advantage later on (Shaw & Savada, 1990).

The educational background of childcare personnel differs from four-year college graduates (17 percent), two-year college graduates (59 percent), and high school graduates (24 percent; International Bureau of Education, 2011). Korean kindergarten instructors incorporate much academic instruction and the development of soft skills alongside playful activities (Taguma, Litjens, Heejin Kim, & Makowiecki, 2012).

2.2 Primary Education and Lower Secondary Education

2.2.1 Elementary School

In South Korea, primary and lower secondary education are funded by the government. The enrolment rate is estimated at 99 percent and the transition rate to middle school at nearly 100 percent (KEDI, 2015). Children generally start the six years of compulsory elementary school (primary education) when they are six years old. Elementary school covers a range of subjects including languages, math, arts and physical education (WENR, 2013).

Special education adopts several forms, addressing individual program processes and formats (special kindergartens, schools and classes). The main goal of special classes below the high school level is to offer integrated education for disabled students (International Bureau of Education, 2011)

2.2.2 Middle School

After completion of elementary school, students progress to three years of middle school. The middle school enrolment rate is about 96 percent and the transition rate to high school is nearly 100 percent (KEDI, 2015). Middle school education is compulsory and usually starts when children are 12 years old (International Bureau of Education, 2011). The main goal of this education level is to develop basic skills. Exam results are not relevant to progress from one

grade to the next (IQAS, 2009). However, the grades of the final year of middle school are very important to gain entrance into one of the top high schools. It is hence not surprising that the average South Korean child spends 13 hours a day studying if accounting for supplemental class time. Like in elementary school, students are randomly assigned to a school in their residential area, independently of the school being public or private (International Bureau of Education, 2011).

2.3 Upper Secondary School

2.3.1 High School

The completion of middle school signifies the end of compulsory education. Nevertheless, the enrolment rate into high school is as high as 91.5 percent (in 2013; KEDI, 2015). It lasts three years and is not free of charge (Kuczera, Kis, & Wurzburg, 2009). The aim is to advance the general and specialized education from middle school. Students receive a high school certificate after graduation (IQAS, 2009).

According to Choi (2014), the largest enrolment is in general high schools (71.6 percent), followed by specialized high schools (16.9 percent, of which 16.8 percent in specialized vocational high schools), autonomous high schools (7.9 percent) and special-purposed high schools (3.5 percent, whereof 0.8 percent in Meister high schools). Thus, 82.3 percent of students enroll in general education programs and 17.6 percent in VET programs. While the purpose of general high schools is to prepare students to enter university, the goal of vocational high schools (as well as Meister high schools) is to prepare students for entrance into the labor market after graduation (Park & Chung, 2013). Vocational high schools used to have significant enrolment rates, accounting for about half of the students in 1995. Relative importance today has decreased to less than one quarter of total enrolment (Kuczera, Kis, & Wurzburg, 2009). The transition rate to tertiary education is about 70.7 percent, though it is higher from general high schools (77.5 percent) than from the specialized (46.8 percent; KEDI, 2015).

2.4 Postsecondary / Higher Education

The government sets the minimum admission requirements and strict enrolment limits. Students wanting to enter higher education need a high school certificate as well as the highly competitive College Scholastic Aptitude Test (CSAT) score from the Korea Institute for Curriculum and Evaluation (KICE; International Bureau of Education, 2011) 250 points out of 400 is the minimum amount of points needed to pass the entry requirement (IQAS, 2009).

The public awareness of private institutions in higher education in South Korea is similar to Japan, Chile or the United States (WENR, 2013). Around 78 percent of university students are enrolled in private institutions (MOE, 2015). Therefore, governmental funding for Korean

universities accounts for under 23 percent of total university revenue, which is significantly lower than the OECD average of 78 percent.

Students may choose from 226 undergraduate institutions, 160 junior colleges, and 1197 graduate schools (KEDI, 2015). Most undergraduate institutions are universities (84 percent), followed by cyber universities (8 percent) and Universities of Education (4 percent). The junior colleges cover most of the junior college programs (86 percent), followed by 11 polytechnic colleges (7 percent). The graduate courses are mostly covered by graduate schools (96 percent). There are several higher education programs and qualifications, which are explained below.

Junior colleges offer two- to three-year programs in vocationally oriented fields leading to an associate degree (International Bureau of Education, 2011). Most programs take two years (75-80 credits needed) but there are also three-year programs (120 credits needed) offered in several fields, including nursing, mechanics and fisheries (IQAS, 2009). Around 50 percent of the junior college spots are reserved for graduates of vocational high schools, craftsmen qualified by the National Certification System and workers meeting specified industrial requirements.

A standard bachelor's degree normally takes four years to complete, but there are accelerated study programs, which can be completed in three years. South Korean bachelor programs offered at universities and colleges are typically structured into two years of general education and two years of specialized education. A minimum of 130 credits and an overall grade point average of at least C (2.00) is needed to graduate. In addition, a thesis, project, or comprehensive examination is part of the graduation process. There are some specific professional degrees that tend to take longer (i.e. architecture requires five years, dentistry and medicine normally requires six years). One hour of coursework or two hours' of practical work in a lab typically earns one credit point. The semester lasts 16 weeks. (IQAS, 2009)

Korean master's programs are offered at universities and four-year colleges. Earning a master's degree requires two years of full-time study i.e. four semesters. In addition, a thesis and coursework of 24 or more credits is usually part of the graduation process. The passing grade is 2.0 (C). The standard entry process includes an interview and a bachelor's degree with a Grade Point Average (GPA) of at least 3.0 (B) or better. Further prerequisites include qualifying exams in the intended field of study, proficiency in English, and a completed and defended thesis. After successful completion of the program, students obtain a master's degree. (IQAS, 2009)

The Ministry of Education supervises Korean doctoral programs. To obtain a doctoral degree, a dissertation, at least 36 credits, proficiency in two foreign languages, and a grade average of B or better is required. The standard entry process is based on the completion of a master's

degree and some research experience. In some cases, students can enter directly into a combined masters/doctoral program, which requires twice the coursework of a standard doctoral program. (IQAS, 2009)

2.5 Continuing Education (Adult Education)

In order to strengthen lifelong education and pursue the development of South Korea's human resources, the Lifelong Education Law (revised in 2007) clarifies the possibilities and fields of lifelong education. It further defines types of systematic organized education activities other than regular school education, like obtaining a diploma, basic adult literacy education, vocational capacity-building education, liberal arts education, culture and arts education, and education for civil participation. (International Bureau of Education, 2011)

Adult education in South Korea consists of a variety of educational institutions with different objectives and educational services. The offer ranges from general education, basic education and catch-up of qualifications in second-chance education, vocational offerings on management courses and training for personality education to university courses and university education. People who have already entered the workforce or have completed vocational training have the option to acquire appropriate qualifications in the form of evening classes in addition to their profession. (IQAS, 2009)

Qualifications are very important in the South Korean working environment and can be divided into two parts: national qualifications and private qualifications. The Ministry of Labour administers the national qualifications, of which the National Technical Qualifications (NTQ) are most important. Private qualifications exist in three different forms. First, there are recognized private qualifications, which are screened by the government to ensure their quality. Second, there is a huge number of registered private qualifications to help employers determine the skills of employees. Third and least official, there are intra-company qualifications between a single employer and its employees. (Kim M.-S. , 2013)

The South Korean government also offers two alternative routes for people to obtain higher education authorizations. One is the Bachelor's Examination System, which allows students to earn a bachelor's degree by taking a series of tests. The other is the Credit Bank System (CBS) administered by the KEDI, a government-funded research body. The CBS allows students to take courses in any accredited program and apply them towards a diploma, associate's degree or bachelor's degree. (IQAS, 2009)

2.6 Teacher education

The fast growth of the education system has led to overcrowded classes, teacher shortages and intense competition for university placement. The education of teachers was reformed to address the first two problems (International Bureau of Education, 2011). Kindergarten teachers are now trained in two-year diploma or associate degree programs at junior colleges (IQAS, 2009). They may also attend four-year bachelor's degree programs at colleges and universities, including colleges of education within "normal" public universities or the public *Korean National Open University*, which provides distance learning, as well as private universities. To train elementary school teachers, there are eleven specifically designed universities of education (ibid.). While elementary school teachers are trained almost exclusively at universities of education, middle and high school teachers are educated in both special purpose and open programs in general colleges, teaching certificate programs in general colleges, and graduate schools of education (IQAS, 2009).

3. The System of Vocational and Professional Education and Training

In this section, the South Korean vocational education and training system (VET) at the upper secondary level as well as the professional education and training system (PET) at the tertiary level are described in more detail. The term vocational and professional education and training (VPET) refers to both, the VET and the PET system.

3.1 Vocational Education and Training (VET; Upper Secondary Education Level)

The vocational education and training system in South Korea provides a mix of general education and in-depth teaching of a specific subject. Students are both prepared to enter the labor market or to continue their education at the tertiary level (PET) after graduation (Park & Chung, 2013). Contrary to many European countries, South Korea's VET is mainly school-based.

Historically, VET has been crucial for educating workers to meet the industry's high demand for technicians and engineers. The proportion of students in vocational education institutes fluctuated between 35 and 45 percent from 1980 until 2000 (Choi D. S., 2014, p. 44). However, as South Korea began to change from an industry and technology-based into a knowledge-based economy, the demand shifted towards university graduates. This trend, combined with other problems of the VET system (such as graduates finding employment in low-level work with low wages), led to a decreasing number of students choosing the VET pathway. In 2013, only 18 percent of all students in secondary education chose VET (Choi D. S., 2014, p. 44). In the mid 2000's, the government took a series of measures to improve the quality and attractiveness of VET. Among them was a reorganization of vocational high school education (section 3.1.1) and the introduction of Meister high schools (Section 3.1.2).

The vast majority of students choosing the VET pathway attend a specialized vocational high school, although the newly introduced Meister high schools, which only account for a few schools so far, are likely to play a more important role in the future (Park & Jang, 2014).

3.1.1 Specialized Vocational High School

Specialized vocational high schools have undergone many organizational alterations in the past, with names and compositions changing frequently. In 2007, the name changed from "vocational high schools" to "technical high schools". In the latest reform in 2010, they were renamed "specialized high schools". Up to 2007, they were referred to as "vocational high schools", then the name changed to "technical high schools" and since the latest reform in 2010, they are called "specialized high schools". Besides the name, the composition of schools

that account for specialized vocational high schools has changed as well. Under the policy for the advancement of high school vocational education in 2010, comprehensive high schools, which had been part of the technical high schools, were excluded from the newly defined specialized high schools. The delimitation of comprehensive high schools is responsible for a large part of the reduction of VET schools and students after the year 2010. (Heo, 2014)

Like all high schools, specialized high schools take three years to complete. Students can choose between five different majors. In 2013, the distribution was as follows: 42.1 percent attended a major in industry, 39.4 percent in commerce, 9.4 percent in vocational home economics, 7.2 percent in agriculture and 1.9 percent in fishery & marine (KEDI, 2013). The admission process for new students depends on the local Offices of Education and varies between schools, but generally includes middle school records, a performance test, an aptitude test, an experiment/practical test and an interview (Heo, 2014).

The learning content is broadly defined by the national curriculum. It guidelines the allotment of 204 credit units, whereof 65 credit units are taken in regular subjects (Korean language, English, mathematics, science, etc.) and 86 in the fields of school-based vocational training. Furthermore, there are 29 credit units for school autonomous courses and 24 credit units for creative experimental learning activities. However, the national curriculum allows cities and provinces to adjust some of the credits according to local needs (see chapter 3.5). (Heo, 2014)

Usually, students learn regular subjects in the first year, a mix of regular and specialized subjects (school-based vocational training) in the second year and focus on specialized subjects in the third and final year. In addition, students have the option to attend one semester of workplace training in an industrial setting in the third year (Heo, 2014). Students who wish to work after graduation to gather work experience mainly use this option. Workplace training is supposed to foster the acquisition of major-related skills but there have been problems regarding its quality. According to the OECD's report on South Korea's VET system (OECD, 2009); students in field training have often been "misused" for simple, repetitive, low-level work, which lowers their benefits from training.

In 2013, only less than half (42%) of all graduates of specialized high schools advanced to higher education. This share has decreased substantially since 2007, where still more than two thirds (71%) of all graduates chose to advance to higher education. In contrast, the ratio of graduates choosing employment has risen drastically compared to earlier years. In 2013, the ratio of all graduates that chose to work was about equal (41%) to those choosing to

continue with higher education. On the other hand, only 20% of all graduates chose to work in 2007, which means that this share has more than doubled.⁹ (Heo, 2014)

The reason for this trend lies mainly in the “Employment first – Advancement to university later” policy that has been initiated by the government in 2008. It has encouraged students to enter the workforce after graduation and simultaneously has taken measures to improve the quality of VET education to a point where graduates are able to perform decent work without attending higher education (Heo, 2014). Another reason for the lower continuation rate from specialized high schools into higher education could be that over time less people have enrolled in VET programs in the first place. Consequently, it is likely that those who still choose the VET pathway are determined to work after graduation and that most of the students who wish to continue with higher education do not choose VET in the first place.

3.1.2 Meister High School

Meister high schools were created in 2008 to resolve the existing problems of vocational education (graduates tended to get low-level and low wages work and therefore often chose to pursue with higher education) (Kim J. W., 2014). By 2013, 35 specialized high schools had been transformed into Meister high schools, with 0.8 percent of all students at secondary education, or four percent of all VET students, attending a Meister high school (Park & Chung, 2013).

The idea was to educate students to a high level such that they would be able to join the workforce and fulfill the industry’s requirements directly after graduation without higher education (Park & Chung, 2013). To ensure that students acquire the necessary skills for employment, Meister high schools cooperate closely with industrial firms. The school curriculum is autonomously developed in cooperation with personnel from the industry and is tailored to the specific needs of local industries. In the first year, education focuses on basics and is purely school based. In the second and third year, students choose a major and focus on their special subject in a more practice-oriented environment. This includes teaching in school from industrial experts as well as internships and fieldwork. (Kim J. W., 2014)

Fully allowing for the policy of “Employment first – Advancement to university later”, students of Meister high schools are obliged to work for at least three years after graduation before they can continue their studies at a college or university via the special college admission system (Park & Chung, 2013).

⁹ The remaining 10-20% are not in data.

Meister high schools take three years to complete and offer majors in various fields such as industry, manufacturing, robotics and agriculture among many others (Kim J. W., 2014). Students are selected based on a nationwide screening process that focuses on interest and potential, where only excellent students are accepted. For students, there are many advantages of joining a Meister high school. They are exempted from tuition fees and receive scholarships. They can even postpone military entrance when getting a job after graduation. Furthermore, Meister high schools ensure employment opportunities via consultative bodies of industries and businesses. (Park & Chung, 2013)

3.2 Professional Education and Training (PET; Post-Secondary Level)

Vocational education at the tertiary level is provided by two types of institutions: junior colleges (section 3.2.1) and polytechnic colleges (section 3.2.2). The fraction of junior colleges is much larger, containing about 96% of all PET students, with the remaining 4% attending a polytechnic college (KEDI, 2015). The Korean PET system is primarily designed for young VET graduates. This is in contrast to many other countries, where the PET system focuses on providing additional skills for those already in a profession (OECD, 2012b).¹⁰

3.2.1 Junior College

In 2015, 720'466 students were enrolled in 138 junior colleges across South Korea. Junior colleges accounted for 23 percent of tertiary enrolment in 2015, which makes them the second most popular form of tertiary education after universities (KEDI, 2015). The vast majority of junior colleges (over 90 percent) are private institutions. This is in line with the generally high percentage of private institutions at the higher education level in South Korea (over 80 percent of universities are private as well). (WENR, 2013)

Junior colleges provide mostly two-year programmes, though some take three years (medical and natural science, engineering and education among others) and nursing is even a four-year program since 2011. Furthermore, junior colleges also offer re-training programs and lifelong learning programs as part of the continuing education to the employed (Park & Chung, 2013). Graduates receive the award of an associate degree and have the option to continue their studies at the junior college with a 1-2 years major intensive course that leads to a bachelor's degree (Park & Chung, 2013). Another popular option after graduation is to move on to university for another two years to complete a four-year program that leads to a bachelor's degree (OECD, 2012b).

¹⁰ As for example in Switzerland, where work experience is even an admission requirement for PET.

Admission to the junior college is linked to academic achievement, the College Scholastic Aptitude Test (CSAT) and the main entrance examination score. About half of the available student places are reserved for graduates who have studied the same fields in vocational high schools and technicians with qualifications accredited by the National Certification System. (ADB, 2007)

The content of training is divided into foundation courses and specialized courses. Foundation courses make up for 15-25 percent of the total credits and specialized courses for the remaining 75-85 percent, depending on the individual school curriculum. While foundation courses focus on general theoretical knowledge, specialized courses mix theory with experimentation and practice. (ADB, 2007)

Workplace training is optional in junior colleges. The OECD's review of Korea's vocational education and training system (OECD, 2012b) criticizes the low participation rates in work-based training, its weak quality assurance and the fact that students are not always granted credits for the time spent in companies.

3.2.2 Polytechnic College

Polytechnic colleges provide training for mid-level experts of technical fields like electronics, mechanical engineering or telecommunications. In 2015, 28'873 students were enrolled in 11 polytechnic colleges across South Korea (KEDI, 2015). The vast majority of students are recent high school graduates, but there is also an increasing share (up to 6.5%) of entrants holding a junior college or university degree. Contrary to junior colleges that are mostly private, all polytechnic colleges are public and charge relatively low tuition fees. (OECD, 2012b)

Polytechnic colleges mainly offer two types of programs: technician training programs and craftsmen programs. Technician training programs last two years and grant an industrial associate's degree upon graduation. To apply, students need to have a high school degree. Craftsmen programs take only one year to complete and can be joined independently of the educational background. They are mostly used by high school graduates who don't wish to continue with higher education. Just as junior colleges, polytechnic colleges also offer shorter programs as part of the continuing education to the employed, the unemployed and retired military servicemen. (Young-Sun, 2013)

The focus lies on practical education (experimentation and practical exercises) in all programs. The curriculum of the technician training program consists of 40% theory and 60% practicum (ADB, 2007, p. 62). The craftsmen training program puts even more focus on practical training, with a composition of 30% theory and 70% practicum (ADB, 2007, p. 63). In contrast to junior colleges, a module of workplace training in polytechnic colleges is mandatory (OECD, 2012b).

3.3 Regulatory and Institutional Framework of the VPET System

This section summarizes the legal aspects of the vocational education and training sector and describes who is responsible for which aspects of the VPET system.

3.3.1 Central Elements of VPET Legislation

The “Fundamental Law of Education” defines the goals and the basic structure of South Korea’s educational system and guarantees the educational rights of all citizens. It is further divided into the “Elementary and Secondary Education Law”, which determines all aspects of the establishment and operation of elementary, middle and high schools and the “Higher Education Law”, which does the same for higher educational institutes including junior colleges. Further educational training, as well as polytechnic colleges, are under the law of the “Vocational Training Act”. (International Bureau of Education, 2011)

3.3.2 Key Actors

Government

The state plays a very important role in South Korea’s education system. The national curriculum as well as educational standards are set nationwide by the government (see chapter 3.5). The responsible ministries are the Ministry of Education and the Ministry of Labor. The Ministry of Education is responsible for the general education as well as the school-based part of vocational education. It is responsible for all educational institutions except for polytechnic colleges, which belong to the domain of the Ministry of Labor. Besides polytechnic colleges, the Ministry of Labor is also responsible for continuing education and the national qualification system. Furthermore, it oversees the work-based part of all VPET institutions. (International Bureau of Education, 2011)

Although South Korea has a relatively high grade of centralization, there is still some room for autonomous decision making at the municipal, provincial and local level. The responsible offices for education have the authorization to adjust the national guidelines to the specific needs of their area. Each local office for education consists of a Board of Education that decides upon important educational matters and a Superintendent, who issues rules regarding the school’s finance, facilities and equipment, and the school curriculum. (International Bureau of Education, 2011)

Representation and advisory bodies

There are three major government-funded research institutes for vocational education in South Korea. These are the “Korea Educational Development Institute” (KEDI), the “Korea Institute of Curriculum and Evaluation” (KICE) and the “Korea Research Institute for Vocational

Education and Training” (KRIVET). They conduct research, evaluate school performances and help improve the national curriculum and general direction of education. (International Bureau of Education, 2011)

Relevant stakeholders have less power in South Korea than in many other countries (OECD, 2009). The reason is that South Korea's education system in general is highly state-dominated and the VET system focuses more on school-based teaching than apprenticeships, which lowers the influence of employers. There are no organized employer associations, which have a say in the development of the national education policy. However, on the local level, offices for education and individual schools cooperate with industrial firms (ibid.).

Education providers are organized in the “Korean Council for College Education” and the “Korean Council for University Education”. These organizations aim for cooperation in management and research and make policy recommendations to the government. Teachers are organized nationwide in the “Korean Federation of Teachers Association” (KFTA), with about 200'000 active members across the country. The KFTA tries to influence and improve the teachers' welfare and the educational policies. (International Bureau of Education, 2011)

Education and training providers

Vocational education is provided by specialized vocational high schools, Meister high schools, junior colleges and polytechnic colleges as described in chapters 3.1 and 3.2. On-the-job training, if provided, either takes place in public or private enterprises or in so-called “school enterprises”. The latter are specifically designed enterprises from schools with the only purpose to provide on-the-job training. (Choi S. J., 2014)

3.4 Educational Finance of the VPET System

The following paragraph gives an overview of South Korea's expenditures on education and is based on the OECD report Education at a Glance (2014b). In 2013, South Korea spent 6.7 percent of its GDP on education. This shows the importance of education in South Korea, as it is the second highest number among all OECD countries and well above the OECD average of 5.3 percent. Expenditure on primary, secondary and post-secondary education accounted for 3.7 percent of the GDP. Thereof, 84 percent were publicly funded. These numbers are very similar to the OECD average.

However, the unique characteristics of South Korea lie in the tertiary education. The expenditure for tertiary education is among the highest in the OECD, of which 70 percent is privately funded (this is the highest share among all OECD countries). There are two reasons for this. First, in South Korea, a very high share of youth attends tertiary education, which increases the costs. Second, most of the tertiary institutions are private, which is in contrast to

most OECD countries, especially the European ones. Overall, the South Korean government does not spend more on education than the OECD average, but together with the unusually high private spending the total amount is the second highest behind New Zealand.

3.4.1 Educational finance of the VET system

The Ministry of Education, local autonomous governments and industries financially support specialized vocational high schools. Depending on the school, their relative importance differs. As part of the reform of vocational high schools, students in specialized high schools receive free education since 2011. That means that the government offers a full scholarship, including admission fee and tuition. (Heo, 2014)

In Meister high schools, students do not have to pay tuition fees and receive scholarships. During the process of establishing a Meister high school, metropolitan and provincial education offices, local offices and businesses provide the matching funds. Once established, the Ministry of education provides the funds to operate Meister high schools. (Park & Chung, 2013)

3.4.2 Educational finance of the PET system

Junior colleges are mostly private institutions, consequently government funding accounted for less than 10 percent of total junior college income in 2010. The government funding is under the responsibility of the Ministry of Education and awards colleges that fulfill certain criteria through a formula funding system. In 2011, 80 out of 143 junior colleges received government funding (OECD, 2012b). Still, the majority of junior college's budget is privately financed, mostly through students' tuition fees. Thus, tuition fees are higher in junior colleges than in polytechnic colleges, which are public institutions. (OECD, 2012b)

The funding of polytechnic colleges is under the responsibility of the Ministry of Labor. During the mandatory workplace training in polytechnic colleges, the companies have to pay the students' wages. There is no national funding arrangement for companies that provide training to VET or PET students.¹¹ However, schools often cover the firms' costs for the workplace training (equipment and material) through school-industry cooperation programs. (OECD, 2009)

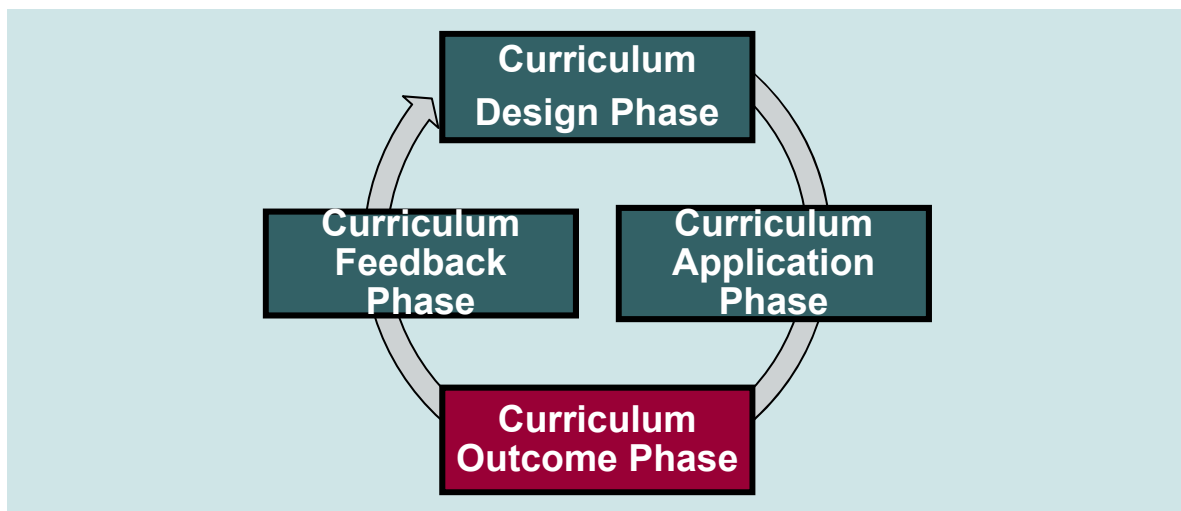
3.5 Curriculum Development

The curriculum is a central element for the functioning of a VPET system by defining the framework and the (quality) standards for the education system. The development of a curriculum can be decomposed into a three-step process with a curriculum design, a

¹¹ Firms get financial support through the Employment Insurance System for training their own employees, though.

curriculum application and a curriculum feedback phase. This theoretical concept is called the Curriculum Value Chain and is depicted in the picture below (CVC; for more details see (Bolli, et al., 2016)).

Figure 5: Curriculum Value Chain (CVC)



Source: (Bolli, et al., 2016)

In the curriculum design phase, VET curriculum content and qualification the relevant actors decide upon standards. Therefore, the discussion in the respective subchapter below focuses on the degree and the amount of stakeholder participation concerning curriculum design in South Korea. The curriculum application phase revolves around the implementation of the curriculum. Because learning environments differ heavily across countries—especially with respect to the prevalence of workplace learning—the subchapter on the curriculum application phase focuses on those learning environments. Specifically, it addresses where learning takes place and whether the curriculum dictates both school and workplace learning or only one of the two. Finally, curriculum outcomes can be collected and analyzed in the curriculum feedback phase. This evaluation process is important as it may render a more refined curriculum design than was possible in the first place.

3.5.1 Curriculum Design Phase

The design phase is crucial for the whole curriculum process. In order to ensure that the skills taught in the VPET programmes correspond to the needs of the labour market, experts from companies should be involved in defining the qualification standards and learning contents of the curricula.

In South Korea, the general goals and contents of education are determined at the national level, with a relatively high grade of centralization. However, in recent years, there has been a trend towards more autonomous decision making at the municipal, provincial and local levels and at individual schools. The Ministry of Education determines the national curriculum, which

prescribes general guidelines of education at different schooling levels (e.g. how many credit points need to be gathered in regular subjects and how many in specialized subjects to achieve a degree in specialized high schools). In a second stage, the Metropolitan and Provincial Offices for Education prepare guidelines for the organization and operation of the curriculum in their respective regions. Finally, each school organizes and operates the school curriculum individually based on the framework provided by the national authorities. (Choi D. S., 2014)

In contrast to general high schools, vocational education institutes have more freedom to adjust subjects to the characteristics of their school and the demand of the local labour market. The specifications for the general content (math, languages, etc.) are quite strict, but there is some room for adjustment of the vocational content. (Choi D. S., 2014)

Employers have no influence on the national curriculum, but they do have some power in the process of school curriculum development. The “Vocational Education and Training Promotion Act” declared the concept of industry-academic cooperation by law in 1997. However, it did not work in practice until the reform of vocational high schools in 2010. Since then, all specialized high schools use an approach of cooperation with industrial firms. Meister high schools were specifically designed with the idea of close industry-academic connection in mind. There, personnel in the industry are responsible for developing the curriculum. This is in contrast with specialized high schools, where schools together with the local offices for education develop the school curriculum. (Choi S. J., 2014)

In Junior colleges, the industry-academic cooperation is pursued in so-called “customized education”. This means that junior colleges sign a memorandum of understanding with specific businesses with whom they cooperate closely. The companies can influence the school curriculum to ensure that students get the desired education. Later, the businesses often employ the graduates of the colleges. (Park & Chung, 2013)

In their analysis of South Korea’s VET system in 2009, the OECD criticized that the involvement of local employers in the development of school curricula was very firm specific. Instead of well-defined standards, there was a wide variety of skills covered by different institutions. This had negative effects on the reputation of VET, as it produced uncertainty of the skills of the graduates (OECD, 2009). This problem has been addressed in the latest and still ongoing reform of the VET system. Vocational education is aimed to be closer connected to National Competency Standards (NCS), allowing for a better connection of school degrees and national qualifications (see chapter 4.1).

3.5.2 Curriculum Application Phase

The way in which a curriculum is implemented—especially with respect to learning environments—is important to achieve the intended learning outcome.

As described in sections 3.1 and 3.2, VET and PET programs are predominantly school based, with some voluntary work-based components. Polytechnic colleges are the only institutions with a mandatory workplace training. Accordingly, the national curriculum is purely school-based. However, workplace training is offered (voluntarily) in all VPET institutions and is regulated in the school curricula.

The following paragraph is based on Choi S. J., (2014). Students who choose workplace training usually attend it in the second semester (with a duration of about 3 months) of the third year of specialized high schools and Meister highs schools. There is a standard agreement made between the student, the school and the company. The workplace training is under the supervision of the Ministry of Labor. However, no quality standards exist and firms have complete freedom in designing its content. Workplace training is used to gather work experience and as a probation time, which often leads to employment after graduation. Firms are responsible for paying the wages for students in workplace training (which is usually about 70% of the wage of a regular worker). Schools often contribute to the costs by providing training material and equipment.

Besides the workplace training, the industry-academic cooperation also frequently includes that employers provide schools with industrial experts as part-time teachers.

3.5.3 Curriculum Feedback Phase

The curriculum feedback phase deals with the question, whether and how educational outcomes are analysed. Based on this, the curriculum could be re-worked and improved.

The Korea Institute of Curriculum and Evaluation (KICE) is an educational research institution funded by the government that conducts research on primary and secondary school curricula. Based on that, it recommends improvements on the national curriculum (International Bureau of Education, 2011). Similarly, the Korea Educational Development Institute (KEDI) tests performances of schools and high schools and tries to improve the education system based on current issues (ibid.). Besides the two national organizations that re-work the national curriculum, school institutions constantly improve the curriculum and its implementation at the school-level.

3.6 Supplying Personnel for the VPET System (Teacher Education)

The teaching in Korea's VPET System is divided into general subjects taught by regular teaches and special subjects taught by VET teachers. According to Jang (Jang, et al., 2014), the relation of regular teachers and VET teachers is about fifty-fifty in vocational schools. Their education differs quite substantially. Regular teachers study for four years at a college of education to get their teacher certificate. VET teachers need a junior college degree in their

specific subject and additionally attend a teacher training course in a regular college or university that leads to an associate teacher certificate by passing an exam. The latter includes at least four weeks of training in industrial settings (Choi D. S., 2014). According to the OECD's review on Korea's VET system (OECD, 2009), teachers often have strong academic and pedagogic education, but lack work experience, which is not a requirement for becoming a teacher.

4. Major Reforms in the Past and Challenges for the Future

4.1 Major reforms

This section covers the most important recent and still ongoing reforms regarding the vocational education system.

The following paragraph is based on Park et al., (2014).

Recent reforms:

- In 1995, an educational reform focused on the possibilities of lifelong learning. Continuing vocational education, offered at Polytechnics and various other institutions (both public and private), should be open to all people. It allowed high school graduates to continue their study while working and generally tried to shift vocational education from the level of high school to the tertiary level. In retrospect, this last part of the policy led to declining numbers of students choosing the VET pathway, because a vocational high school degree was not enough to get a good job.
- In 2008, the Lee Myung-bak government reorganized vocational high schools and introduced Meister high schools as part of the “Employment first, Advancement to University later” policy. This policy was a countermeasure against the development of the declining importance of vocational education and aimed at making the VET pathway more appealing again. By increasing the quality of vocational education and motivating students to work after graduation, the policy aimed at resolving the problems of poor working opportunities for high school graduates and the labor shortage that arose because of the high transition rate into tertiary education.

Ongoing reforms:

- As Meister high schools have had a successful start with high employer satisfaction on the skills of graduates, the Park Geun-hye government has decided to expand Meister high schools into more sectors.
- The most recent reform aims to organize vocational education based on National Competency Standards (NCS). An attempt to introduce NCS started already a decade ago, but it is only since 2013 that the government has made a serious attempt of introducing it. The Ministry of Labor is responsible for the development of NCS, which define the knowledge and skills necessary to perform tasks in workforce and the Ministry of Education is responsible for applying them in the education system. This reform aims at reducing the mismatch between the mostly academically oriented skills learned in school and the actual demands on employees in workforce. Furthermore, it tries to resolve the problem of the

poor connection between school degrees and national qualifications. In order to do so, a new national qualification framework (NQF) is currently being established based on the NCS. Its goal is to incorporate education, training, qualifications and work experience. (OECD, 2015e)

4.2 Major challenges

The major challenges for the South Korean education system are as follows:

- A strong emphasis on education has been an important factor for South Korea's impressive economic growth in the past. However, the sociological focus on university and college degrees also has its downsides. It can lead to high youth unemployment, because graduates have a hard time finding enough jobs that fit their education level (Park, Jang, & Yoon, 2014). This is supported by data (see chapter 1.2.1): Although South Korea has a low overall unemployment rate of 4.6 percent; young people between the age of 15 and 24 have an unemployment rate of 33.6 percent, which is more than twice the size of the average among OECD countries (15.0 percent).
- Another effect of the strong emphasis on highly academic education is a mismatch between skills learned in education and actual needs in the workforce. University or college graduates may not find enough proper jobs and have to accept jobs that would not require tertiary education (Park, Jang, & Yoon, 2014). As described in chapter 4.1, the government has already taken steps to resolve this problem by strengthening the vocational education pathway and reorganizing it based on NCS. However, in order to achieve the desired results, the society needs to adapt its behavior. This includes schools who have to implement NCS based learning into their curricula, employers who have to use it in their recruitment, wage setting and promotion system and students who need to use the new educational options that do not include attending tertiary education (OECD, 2015e).
- Probably the biggest challenge for South Korea's workforce is its ageing society. South Korea has the world's lowest fertility rate and is among the fastest-ageing societies (Park, Jang, & Yoon, 2014). This brings along a number of economic problems that requires the optimal use of workforce to be controlled. According to Park, Jang and Yoon (2014), early workforce participation of the youth instead of very high participation rates into higher education could be a key of the employment policy. Therefore, vocational education is likely to play an increasingly important role in producing the necessary workforce.

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Appendix

The following list was retrieved from (Park & Jang, 2014) and provides an overview of classification and credential subjects for secondary education teachers.

Table 4: Credential subjects of secondary education teachers (Park & Jang, 2014)

Classification		Credential subject
General subjects teacher		Korean Language, Mathematics, Common science, Physics, Chemistry, Biology, Earth science, Common social studies, Korean history, Geography, Moral education · Ethics, Counseling, Career & vocation counseling, Education, Religion, Philosophy, Psychology, Environmental science, Physical Education, Military training, Music, Fine Arts, Chinese Characters, English, German, French, Chinese, Spanish, Japanese, Russian, Arabic, technology, home economics
Specialized subjects teacher	Agriculture	Plant resources · Landscaping, Animal resources, Agriculture & Manufacturing, Food processing, Agricultural products distribution
	Industry	Electrical engineering · Electronic engineering · Communication engineering, Mechanical engineering · Metallurgy, Chemical engineering · Textiles, Mine resource · Environment, Construction, Ceramic, Engineering printing
	Commerce	Commercial information
	Fishery	Fishery · Ocean, Navigation · Ship engineering, Refrigeration machines
	Other	Information · Computer, Clothing & Design, Photography, Design · Sculpture & Design, Tourism, Cooking, Beauty treatments, Drama & Cinema

Park & Jang (2014) (own illustration)