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Challenges for education from the demographic transition and policy choices in the fastest aging nation in Asia

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1. Demographic ID Card – Republic of Korea

Figure 1: Changes in age pyramids (1950, 2017, 2050)

The three age pyramids below illustrate changes in the population size and age structure of the Republic of Korea between 1950 and today, and projected changes until 2050.

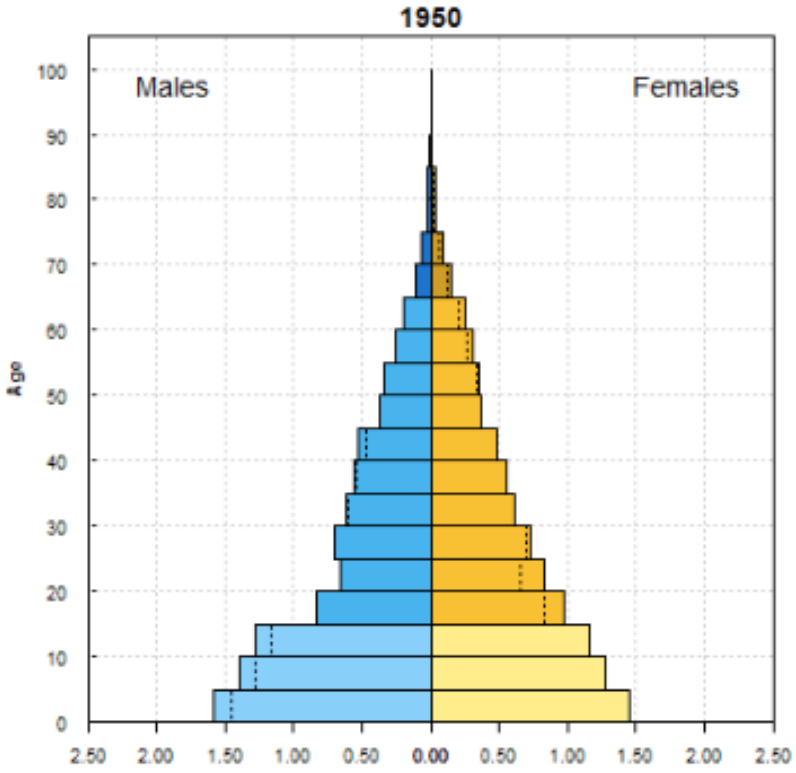


Figure 1.1: The broad based pyramid of 1950 indicates a youthful population, thwarted in favor of boys; its slim top small numbers and proportions of elderly. A slightly decimated male population in the productive working age groups 20 to 40 years may be an effect of the Second World War.

Figure 1.2 below: The bell-shaped 2017 population pyramid denotes a rapidly aging population. The working age population from 40 to 60 years is still strong but clearly shrinking. The size and proportions of children and youth (0-15 years) is declining remarkably, implying lower child dependency ratios and increasing old age dependency ratios.

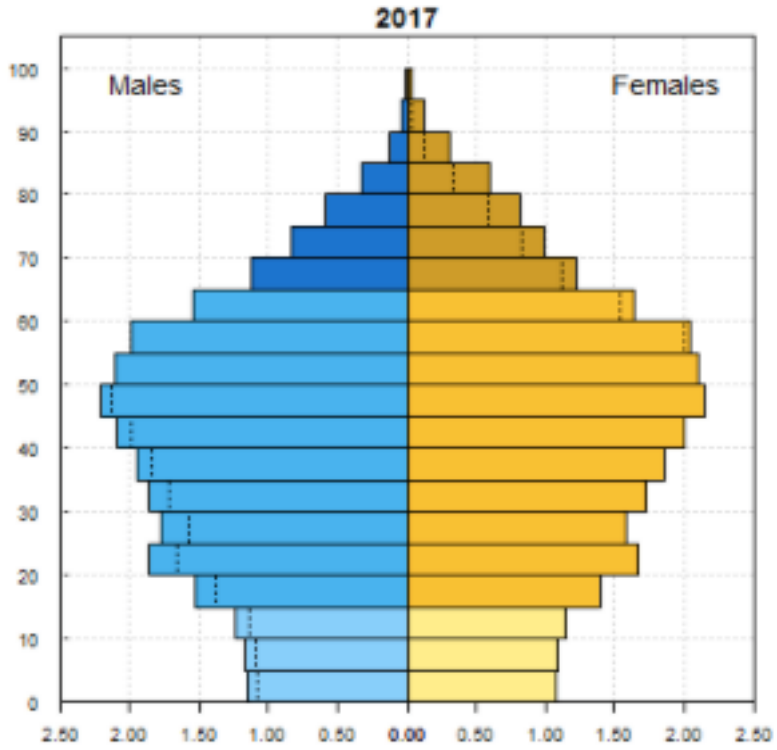
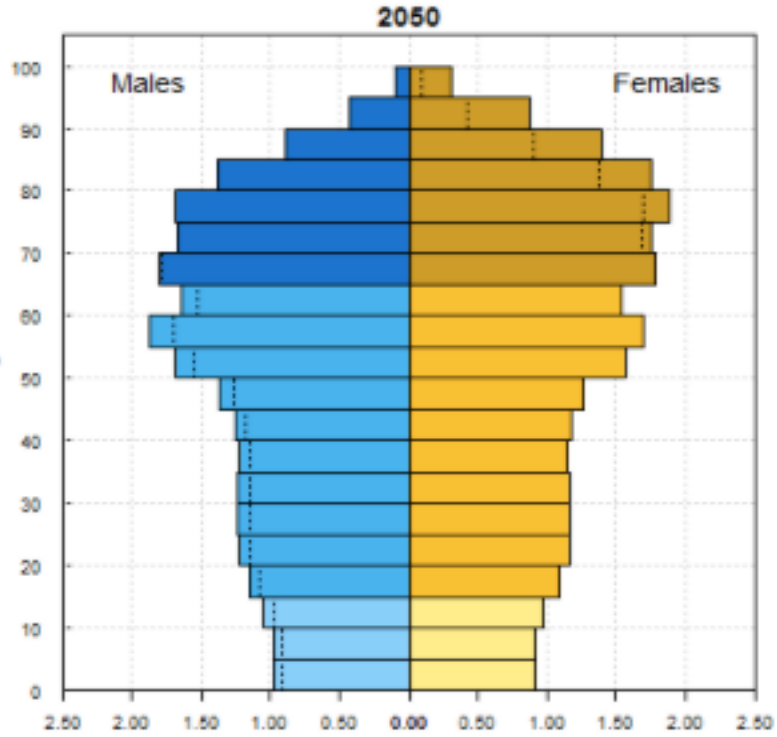


Figure 1.3: The third population pyramid shows projections for 2050. This inversed pyramid denotes a super-aged society with very high old age dependency ratios supported by a shrinking working age population.

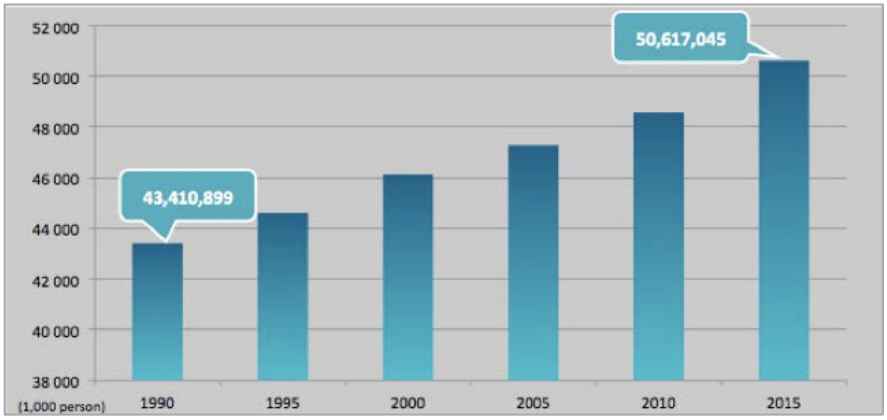


Source: United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision.

Figure 2: Changes in population size

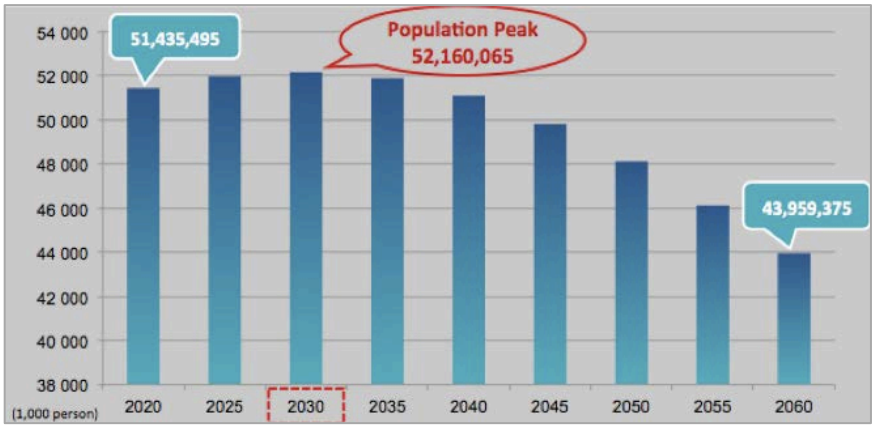
The bar charts show the change in population size, including past trends and projected trends until 2060. The second chart shows that the population will peak at about 52,000 million around 2030 and then decline in absolute figures.

Figure 2.1: Changes in total population: past trends (1990-2015)



Source: National Statistics portal "Census" (http://kosis.kr, retrieved 20 May 2016).

Figure 2.2: Changes in total population: future projections (2015-2040)

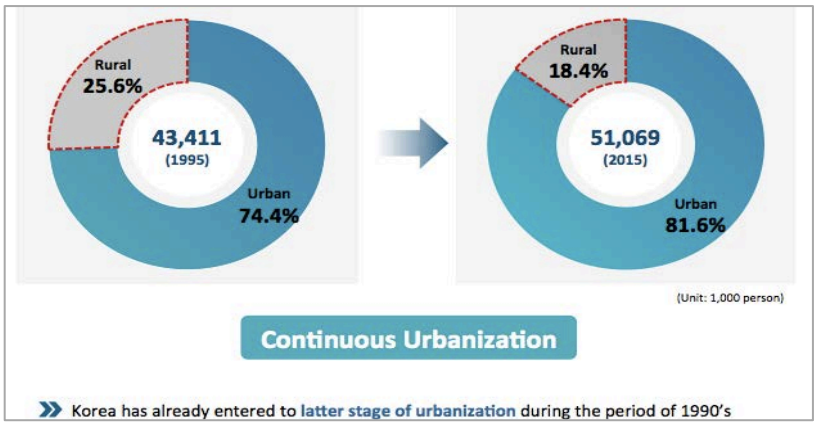


Source: National statistical portal "Future population prediction (1960-2060)" (http://kosis.kr, retrieved 1 June 2016).

Figure 3: Urban and rural population

Figure 3 shows that Korea has been highly urbanized already some 20 years ago, in 1995, and its share of population living in urban areas further increased at over 80%.

Figure 3: Share of urban and rural population (1995 & 2015)

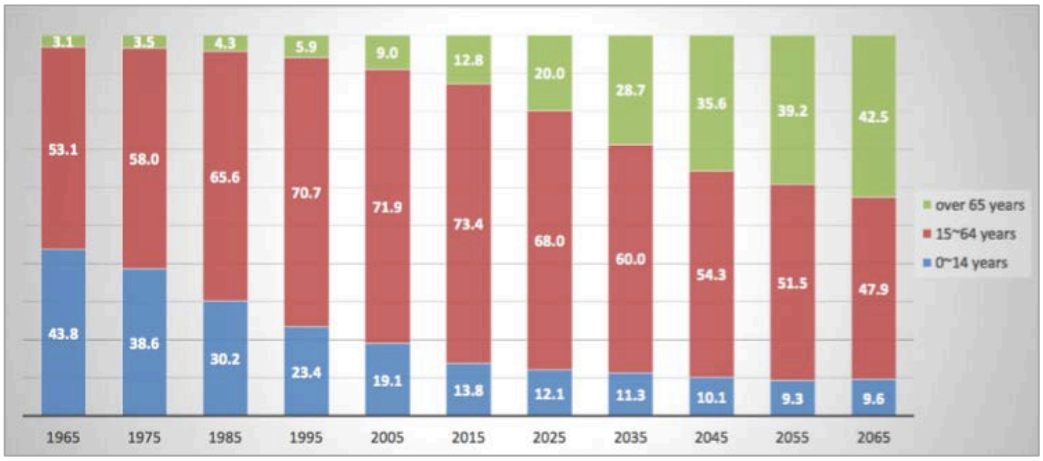


Source: National Statistics portal "Census" (http://kosis.kr, retrieved in 31 May 2016).

Figure 4: Working-age population

The bar chart illustrates the shrinking share of working age population in Korea between 1965, period of strong industrialization and economic boom, and projected until 2065. This shrinking working age population is supporting a declining share of children and youth and a larger share of old age population that increases strongly particularly after 2030 when the Korean population will have peaked in absolute terms.

Figure 4: Share of working-age population (1965-2065)



Source: Produced by KEDI 2017, Power Point Presentation ANTRIEP Policy Seminar 3-5 May 2017.

2. How demographic trends shape socio-economic development prospects

Dramatic changes in the country's population structure. The Republic of Korea is aging at a rate faster than all other OECD countries, bringing with it important changes in the country's population structure. Korea is expected to enter the stage of an "aged society" by 2018 with its population aged 65 years and above reaching 14%. In 2026 Korea will enter the ranks of so-called "super-aged societies" such as Japan, Germany, France and the U.K. with over 20% of population aged 65 or above. The old age dependency ratio that now stands at 19 elderly for every 100 economically productive persons will dramatically increase by 2060 to over 80 elderly to be supported per 100 workers. Over the same period the youth dependency ratio will remain largely unchanged at about 20 children (0-14 years old) per 100 persons in the working age (15-64 years). The share of the economically active population (aged 15-64) will have changed from currently 73% (2015) to less than 50% of the total population by 2060. In absolute figures the Korean population will start shrinking in 2030.

Declining fertility rates uphold by changed perceptions and lifestyles. The drastic population change is driven by a combination of factors including demographic, socio-cultural and economic developments as well as policy changes. The path to economic prosperity had been accompanied from the 1960s to 1980s by national family planning programs, leading to a strong decline in fertility rates (from 4.5 in early the 1970s to 1.17 in 2015). Research studies point to economic conditions as one important factor, including high living costs and unstable employment conditions. Social consequences include delayed age of marriage for women, linked to increased female labor-market participation and social status that influences the perspectives on marriage and child bearing among young females. Young couple express concerns about the high costs of childcare and education in a competitive society where "intensive parenting" is becoming the norm, at least in urban areas. The existing hierarchical working culture makes it difficult in Korea to achieve a work-life balance. Low child birth rates, below replacement level, have become a deeply anchored social behavior and reversing it a key challenge for public policy.

Diminishing number of workers per pensioner Increasing life expectancy since the 1970s constitutes a second dimension of the dramatic population change. Improved medical care and quality of life contribute a strongly increasing old age dependency ratio. In 2015 just over 13% of the population is aged over 65 years; by 2060 the share will increase to over 40%. This demographic shift triggers debates about increases in public spending for health care and social welfare, compromising other social sector budgets such as education.

Internal migration creating a "doughnut city phenomenon". Strong urbanization since the 1960s is a third key factor driving population change in Korea (*Figure 3*). Urban lives tend to foster new lifestyles and work against natality. Internal migration has led to an influx of population into satellite cities surrounding the Seoul City area (the co-called "doughnut city phenomenon"). In search for more affordable living residents of Seoul, mostly young families with children, are moving out to nearby satellite towns. Class sizes in city centers are shrinking while new schools are opened in satellite towns. In addition, since 2012 the government practices a major population dispersion

policy which includes relocating all central government departments and public institutions, with implications for social services such as schools. A phenomenon of counter-urbanization occurred in parallel more recently. While it concerns mainly elderly moving back to rural areas in search of better quality of life it nevertheless contributes to maintain the urban-rural balance stable over the past 20 years, at about 80% to 20% of total population in 2015.

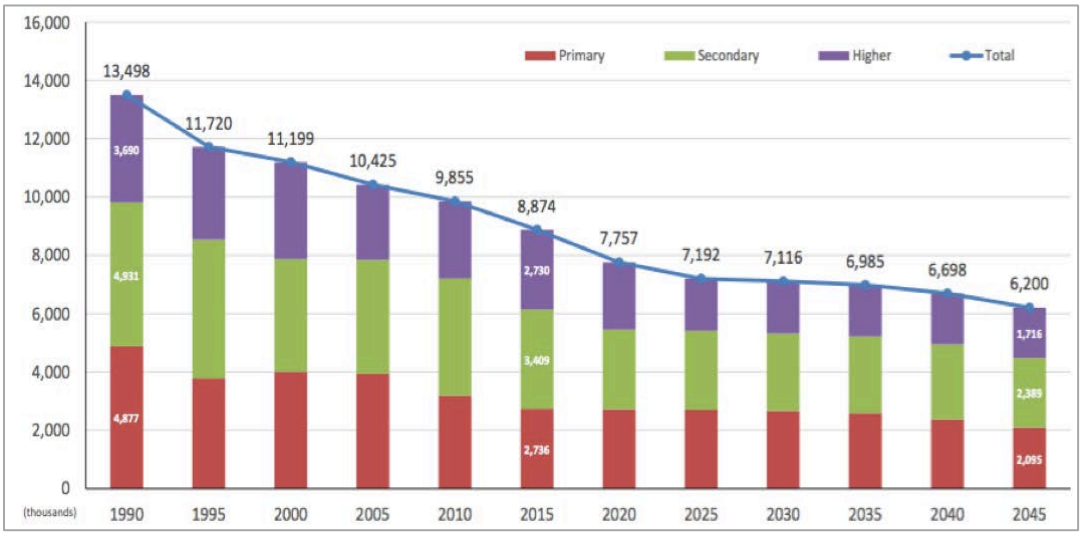
International migration, a new phenomenon. Considering these population changes Korea's education institutions and labor market are opening up to reap the potential of international migration from the region and beyond. In recent years, the number of foreign workers increased rapidly, up to 1.9 million in 2015, or 3.7% of total population. International student numbers and numbers of multicultural families and North Korean defectors also increased gradually. This trend is likely to continue, leading to a diversification of the population composition that is a formerly unknown phenomenon in Korea, and adaptation in social services.

Shrinking working age population. As a result, of the demographic transition Korea will be confronted, within one generation, with the prospect of a shrinking working age population (*Figure 4*). Between 2020 and 2050, the pool of potential workers will shrink by 35%. An effect will be to increase dramatically the burdens on the economically active population. Korea is under pressure to boost productivity growth by a combination of means. Maintaining living standards will depend largely on ways to achieve productivity gains in a competitive international environment through investments in education, training, innovation and technology; measures to bring into the labor market untapped labor, among them a larger share of females and foreign workers; and raise the retirement age or otherwise extend lifetime careers.

3. Changes in education demand from the demographic transition

Declining birth rates since the onset of the demographic transition in the 1980s translate into a decline of the school age population. The biggest decline is at the primary education level where student numbers almost halved from 4.8 million in 1990 to 2.7 million in 2015. A further decrease by about one quarter is expected until 2045, with only about 2 million pupils enrolled at primary level .

Figure 5: **School age population (1990-2045)**

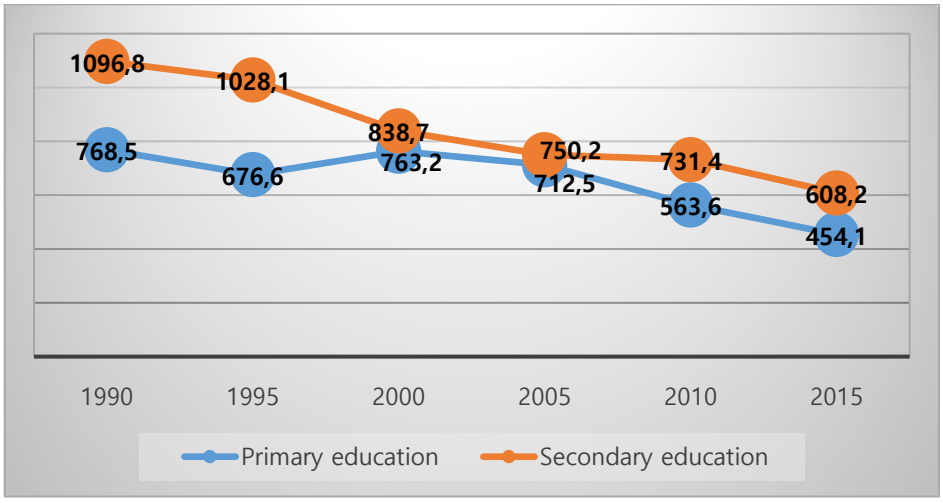


Source: National statistical portal "Regional future population prediction (1970-2040)" & "Future population prediction (1960-2060)" (http://kosis.kr, retrieved in 1 June 2016).

Increasing number of smaller schools and cost-effectiveness concerns. As a result, the size of schools, both primary and secondary, has been shrinking as well (*Figure 6*). Schools in rural areas started to experience a loss of students earlier, mainly because of rural-urban migration. Early government responses including school abolitions and mergers explain that the decline has been moderate in recent years compared to urban schools. The size of primary schools in urban areas was halved since 2000. The size of secondary schools declined as well with a faster pace observed in urban areas where schools size shrank by about 33% in 15 years. A survey undertaken in 2011 revealed that some 20,000 classrooms, or 8% of total number of classrooms, were not utilized.

At the same time, the number of primary and secondary schools increased over the past 25 years. The marked exodus of families from inner cities to suburban areas led to the closing of classes in traditional city centers and establishment of new schools in satellite towns.

Figure 6: **School size – Number of pupils (1990-2015)**



Source: Korean Educational statistics service (http://kess.kedi.re.kr, retrieved in 2 February 2017)

Higher and adult education. The demographic changes are felt at the higher education levels as well. A reduction of student enrolment quota is threatening the resources of universities, triggering university reforms since the early 2000. An influx of international students, encouraged by a number of government initiatives, compensates to some extent declining numbers of Korean students. To protect resource levels and keep operations cost-effective universities increasingly cater for adults and the elderly, taking on functions as lifelong learning centers.

4. Education policy options and debates

Demographic dimensions reflected in policy and plans. In the 1990s the Korean Government identified the implications of the rapid demographic transition for the country's socio-economic outlook. Within a decade, in the early 2000, the Government had integrated the demographic dimension in its key policy documents and started adapting public institutions. In 2004 a Presidential Advisory Committee on Aging and the Future Society was established, a think-tank providing guidance on demographic policies across line ministries and sectors. Today major Government plans reflect challenges stemming from the demographic transition. The Basic Plan on Low Fertility and Aging Society 2011-2015 addresses demography-induced changes across sectors. The Plan's first "pillar" includes education interventions designed to create a more family-friendly environment (e.g. improved system of child care); a second pillar focuses on incentives to increase employment rates among untapped pools of labor, for example women and facilitate the integration of foreign workers. Education-specific policies and plans such as higher education reform policies and several Lifelong Learning Plans are formulated with reference to overarching public policy frameworks crafted with the demographic change as a key dimension.

Policy debates. Public education policy debates evolve around two alternative investment options. The debate is whether to reduce public financing for education and training because of shrinking student numbers; or to the contrary increase spending to improve quality of education at all levels with the objective to improve international competitiveness in the labor market in future. Another important public policy debate concerns issues of centralization and a unification of norms for teacher education, structures and resource allocations; or allow greater diversity to address region-specific management issues such as school mergers and related curriculum issues as a means to improve resource utilization and external effectiveness.

Education policy measures to address challenges from the demographic transition. Major directions for education policy can be identified which concern more particularly challenges stemming from the demographic transition.

First, a set of investments is being put in place as part of national pro-natal policies under the Basic

Plan on Low Fertility and Aging Society. These concern government subsidies for childcare, pre-school education, improvement of after-school education, expansion of workplace child care infrastructures, and the provision of free lunch vouchers, among others. These measures are designed to lighten the financial burden of families for education-related costs and support a better work-life balance as part of efforts to create a favorable environment to raise low child birth rates.

Second, for compulsory education school merger and abolition policies are being expanded from rural to urban areas where they concern mainly the city centers. Policy debates evolve around the issue if more centralization and unification of norms for school mergers and abolitions or rather a more decentralized approach that reflects local contexts should be adopted to reduce regional differences in terms of educational opportunities and achievement. The central government insists on school mergers and abolitions for the following two reasons. First, higher per pupil costs affects the financing of small schools whose number is increasing. Second, a deterioration of teaching conditions in small schools makes it difficult to run the full curriculum and practice various extracurricular programs, contributing to widen regional differences in learning. Local governments hesitate to implement school abolitions though, because of strong opposition from communities; some opt for alternative measures such as teacher rotation and circulation among schools.

At the higher education level government policies aim to address two issues. The most immediate concerns the financing of higher education institutions under conditions of shrinking student numbers, leading to profound structural reforms and the introduction of a policy to attract foreign, fee-paying students. The Study Korea Project 2013-2020 is the latest in a series of programs aimed at increasing the recruitment of international students. The second issue concerns the participation of a larger segment of secondary school leavers in higher education to increase the pool of qualified manpower for the labor market. With a female labor force participation rate at about 50% (2017) women constitute the largest pool national human resources to be tapped for the future's highly developed and specialized labor market.

Lifelong learning policies and plans in Korea target primarily the middle-aged working population (females in their 20s and 30s, males in their 30s and 40s) and are geared towards career development. Measures include accreditation systems of ICT for lifelong learning linked to an academic credit bank system; the creation of lifelong learning accounts to support the attainment of additional qualifications and degrees. Job training programs for the elderly are being launched as well with the objective to lengthen careers and support the labor market through delayed entry into retirement.

Finally, education policies have started to address education and training needs of increasing numbers of students from multicultural families as a result of international marriage and foreign workers entering the labor market. The changing composition of the current and future working age population and diversified backgrounds in the school age population call for a revisiting of education contents and teaching to support the diversification of the Korean society.

The Republic of Korea stands out as one of the prospering nations in Asia that started to forcefully address challenges from the demographic transition for the country's future socio-economic development. Education policies are debated with reference to an overarching national policy package to tackle the long-term impact of rapid aging and changing share and composition of the

working age population.

Policy research questions for the future. Key policy research questions concern the redefinition of education policy priorities under conditions of decreasing student numbers and concurrently increasing competition for public resources from social sector budgets for health and care for the elderly. A second area for policy research concerns the issue of school establishment and location, mergers, abolitions and relocations as a result of demographically driven changes in student populations. A third major area for policy research concerns the analysis of measures to adjust demand and supply of teachers to evolving numbers and composition of the student population in the context of the ongoing dramatic demographic shift.