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BASIC STATISTICS OF KOREA

THE LAND

Area (thousand km^2)	100
Agricultural area (thousand km^2)	20
Forests (thousand km^2)	64

Major cities, 2011 (million inhabitants):	
Seoul	9.8
Pusan	3.4
Incheon	2.7
Taegu	2.4

THE PEOPLE

Population, 2010 (million)	48.9
Per km^2, 2010	489
Annual rate of change of population, 2009	0.3

Civilian labour force, 2010 (million)	24.7
Civilian employment	23.8
Agriculture, forestry, fishing	1.6
Industry	4.1
Construction	1.7
Services	16.4

PRODUCTION

GDP, 2010 (trillion won)	1 173.3
GDP per head (US$)	20 777
Gross fixed investment, 2010 (trillion won)	331.7
Per cent of GDP	28.3
Per head (USD)	5 874

Origin of GDP, 2010 (per cent of total):	
Agriculture, forestry, fishing	2.6
Industry	32.5
Construction	6.3
Services	58.5

THE GOVERNMENT

Public consumption, 2010 (per cent of GDP)	15.2
Central government revenue, 2010, consolidated basis (per cent of GDP)	23.1
Central government budget balance, 2010, consolidated basis (per cent of GDP)	1.4

Composition of the National Assembly, March 2012:	Number of seats
The Democratic United Party	89
The New Frontier Party	165
Other	40
	294

FOREIGN TRADE

Commodity exports, 2011, f.o.b. (per cent of GDP)	44.9
Main exports (per cent of total exports):	
Light industry products	6.2
Heavy industry products	91.0
Electronic products	26.4
Cars	8.2

Commodity imports, 2011, f.o.b. (per cent of GDP)	42.4
Main imports (per cent of total imports):	
Consumer goods	10.1
Industrial materials and fuels	62.5
Crude petroleum	19.2
Capital goods	27.4

THE CURRENCY

Monetary unit: Won

Currency unit per USD, average of daily figures:	
2008	1 101
2009	1 275
2010	1 155
2011	1 107

Executive summary

Despite the recent slowdown in world trade, Korea is projected to sustain growth of around 3½ per cent during 2012. Given future spending pressures, fiscal policy should target a balanced budget (excluding the social security surplus). However, if the global economy were to experience a serious downturn, Korea has scope to respond with fiscal stimulus, given its strong fiscal position, and monetary policy easing. Looking further ahead, Korea faces two key challenges:

- *Sustaining economic growth in the face of rapid population ageing.*
- *Improving social cohesion by reducing inequality and relative poverty.*

Sustaining Korea's growth potential. *To mitigate the fall in labour inputs as the working-age population starts declining from 2017, Korea needs to raise labour participation. The low female participation rate should be boosted by encouraging better work-life balance and expanding the availability of high-quality, affordable childcare. Such measures would also increase the low fertility rate. Another priority is to extend the employment of older workers, who tend to leave firms by age 55, by introducing more flexible wage systems and moving away from mandatory retirement. Rising social spending, related in part to ageing, should be financed primarily by the VAT and environmental taxes, as well as by property-holding taxes, thereby limiting the increase in labour taxes and maintaining work incentives.*

Sustaining growth also requires boosting productivity, which is only half of the level in the advanced OECD countries, in part by improving the education system. One priority is to upgrade early childhood education and care (ECEC). Korea needs to address the overemphasis on tertiary education, in part by improving vocational education, to reduce the mismatch problem that limits labour participation of youth. The tertiary education sector needs restructuring to improve quality. The scope for productivity gains is especially large in services, where productivity per worker is only about half of that in manufacturing. Narrowing the gap requires greater competition in services and promoting the restructuring of small and medium-sized enterprises (SMEs), which play a key role in services, by removing obstacles inhibiting their expansion and streamlining public assistance to them.

Growth prospects depend as well on the success of the Green Growth Strategy in transforming Korea's energy-intensive economy and implementing the "Low Carbon, Green Growth" vision. The priority is to promptly introduce a price on carbon, primarily through an emissions trading scheme, supplemented by a carbon tax on small emitters. This would encourage green innovation and help achieve Korea's 2020 objective of reducing its greenhouse gas emissions by 30%, relative to a business-as-usual baseline, in a cost-effective manner.

Improving social cohesion. *Well-targeted increases in social spending, in particular for low-income groups, are needed. However, to preserve fiscal soundness, Korea should be cautious, given that population ageing alone would boost social spending to as high as 20% of GDP by 2050 under the current framework. Expanding the earned income tax credit would provide more assistance for low-income households, while encouraging work. Filling the gaps in the safety net requires breaking*

down labour market dualism, itself a major source of inequality, as non-regular workers face significantly lower wages, precarious jobs, less coverage by social security and less training. A comprehensive approach is required, including reduced employment protection for regular workers and improved social insurance coverage and expanded training for non-regular workers. Higher productivity in SMEs would also help narrow wage gaps.

Education reforms are also needed to promote inclusive growth, notably by: i) improving the access of low-income children to high-quality ECEC; ii) reducing reliance on private tutoring, notably at hagwons, by improving university admission procedures, expanding the quality and diversity of schools and upgrading vocational education; and iii) expanding loans to university students with repayment contingent on income after graduation.

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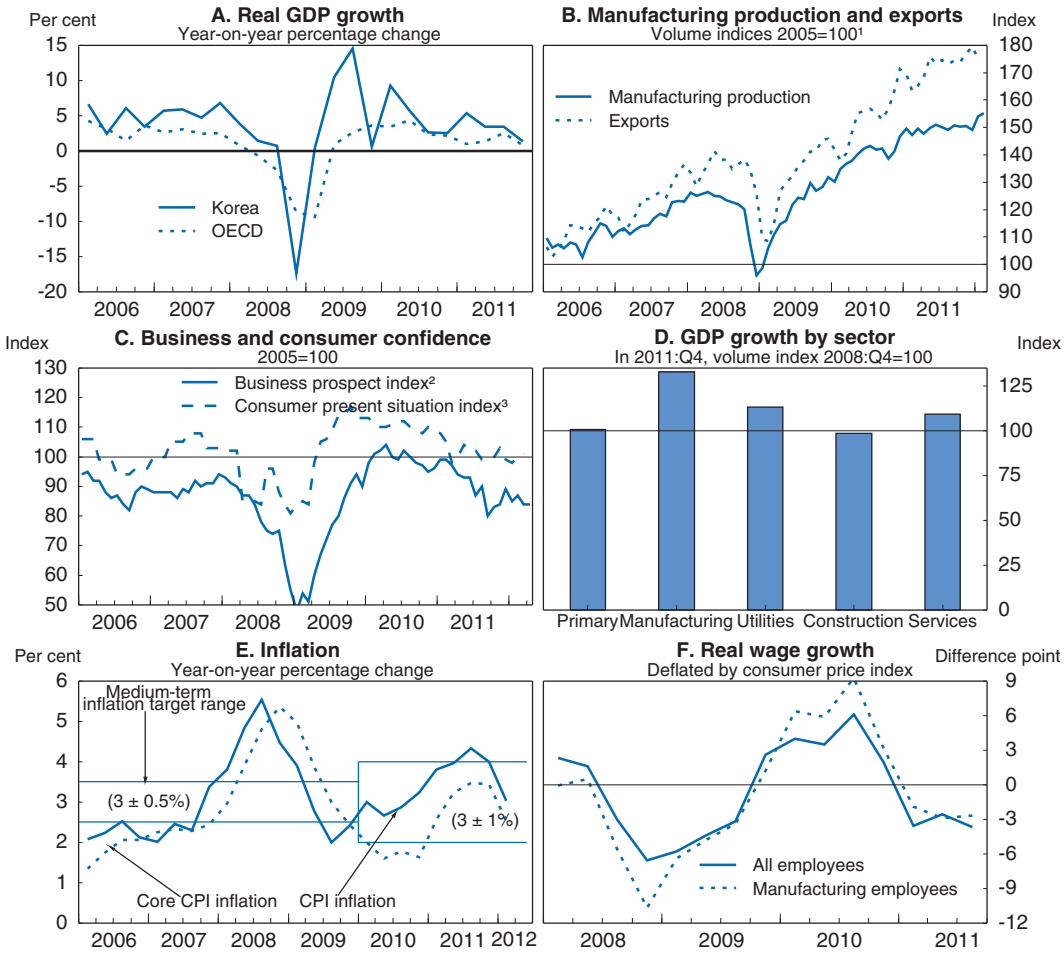
Assessment and recommendations

Korea recovered faster and more vigorously from the 2008 global crisis than most OECD countries (Figure 1), and enjoys low unemployment and low government debt. Growth slowed in late 2011, reflecting the deterioration in the world economy, but is projected at around 3½ per cent in 2012, thanks in part to continued momentum in China. While Korea

Figure 1. **Macroeconomic developments in Korea**



1. Seasonally-adjusted for production and a three-month moving average for non-seasonally-adjusted exports.
2. Seasonally-adjusted index. A score below 100 indicates that a decline in production is expected during the following month.
3. A score below 100 indicates that the current situation is worse than six months ago.

Source: Statistics Korea, Bank of Korea, *OECD Analytic Statistics Database* and Federation of Korean Industries.

StatLink http://dx.doi.org/10.1787/888932592147

is performing well, it needs to prepare for a number of challenges, including rapid population ageing and the economic impact of possible rapprochement with North Korea. The decline in potential growth associated with rapid ageing can be mitigated by reforming the labour market and the education system, thereby promoting Korea's continued convergence to the income levels in the most advanced countries (Chapter 1). Green growth, which is to guide Korea's development over the next 50 years, has a special role to play in this regard (Chapter 2). Carefully-targeted increases in social spending are needed to cope with ageing, as well as rising inequality and relative poverty (Chapter 3). More importantly, Korea should address the roots of inequality through reforms in the education system, the labour market and the service sector.

Korea's economic expansion and macroeconomic policies to sustain it

Growth has averaged almost 5% during the past three years, led by fiscal stimulus in the wake of the crisis and a sharp rise in exports (Panel B). Exports were supported by strong demand from China and the depreciation of the won. Indeed, the won has fallen 47% relative to the yen since 2007, which has a major impact on trade, given that Korean and Japanese products compete in world markets. Buoyant export growth helped restore business and consumer confidence (Panel C).

Korea experienced slower growth and higher inflation in 2011

However, the export-led recovery failed to ignite a rebound in domestic demand. In contrast to the 33% increase in manufacturing output since the late 2008 trough, output in the service sector rose by only 9%, while construction stagnated (Panel D). Given that small and medium-sized enterprises (SMEs) account for about 80% of output and 90% of employment in services, the dichotomy between manufacturing and services has widened gaps between large and small firms, thereby contributing to inequality and damping employment growth. This dualism partly stems from the depreciation of the won, which favoured exports while reducing the purchasing power of consumers. Moreover, the weak exchange rate fuelled inflation, which peaked at 4.3% (year-on-year) in the third quarter of 2011, exceeding the central bank's target range of 3.0 ± 1% (Panel E) and pushing real wage growth into negative territory (Panel F).

The pace of growth is projected to pick up, although there are a number of risks

With the renewed global crisis and slowing world trade, Korean exports and domestic demand fell in the final quarter of 2011. Korea is projected to overcome the current soft patch, with growth picking up from 3½ per cent in 2012 to around 4¼ per cent in 2013 (Table 1), close to the economy's potential rate. Assuming that the sovereign debt and banking-sector problems in the euro area are contained, world trade growth is projected to double from an annualised rate of 3½ per cent in the fourth quarter of 2011 to nearly 7% by late 2012. Under this scenario, Korean export growth would also accelerate, underpinned by a relatively weak won and continued double-digit import growth by China. Faster export growth, in turn, should promote investment and support employment gains and a pick-up in wage growth that will boost private consumption. Inflation is projected to slow toward 3%, given the recent moderation in growth.

However, Korea faces external and domestic risks. On the external side, a materialisation of the risks in the euro area could push the OECD area into a severe recession. Korea would be vulnerable to such a downturn, given that exports now account for more than half of GDP.

Moreover, slower-than-expected growth in China, Korea's major trading partner, and in other emerging economies, would have a negative impact on Korea's economy. Another important risk is rising oil prices, given that Korea is the world's fifth-largest oil importer. On the domestic side, household debt reached 132% of household income in 2010, although delinquency rates remain low. Rising interest rates, after Korea overcomes the current soft patch, could thus have a larger-than-projected damping effect on private consumption.

Spending restraint is aimed at achieving the 2013 balanced budget target

Korea responded to the 2008 global economic crisis with an effective stimulus package of about 6% of GDP, focused on short-term public employment. Temporary fiscal stimulus, accompanied by permanent reductions in personal and corporate income tax rates, contributed to a deterioration in the consolidated central government budget, excluding the social security surplus (Korea's fiscal target), from a surplus of 0.7% of GDP in 2007 to a deficit of 4.1% in 2009.

Fiscal policy shifted to spending restraint in 2010 to meet Korea's target of a balanced budget by 2013. Combined with the cyclical rebound in revenue, the budget deficit narrowed sharply to 1.1% of GDP in 2010. Looking ahead, spending growth is to be limited to 3 percentage points below the growth of revenue in 2012-13. Deficit reduction would indeed be appropriate in the context of a continued expansion (Table 1). However, if a

Table 1. **Short-term economic outlook**

	2008	2009	2010	2011[1]	2012[2]	2013[2]
	Percentage changes, volume (2005 prices)					
GDP	**2.3**	**0.3**	**6.3**	**3.6**	**3.5**	**4.3**
Private consumption	1.3	0.0	4.4	2.3	2.1	3.8
Government consumption	4.3	5.6	2.9	2.1	2.7	3.0
Gross fixed capital formation	–1.9	–1.0	5.8	–1.1	2.1	4.6
Final domestic demand	0.8	0.6	4.6	1.2	2.2	3.9
Stockbuilding[3]	0.6	–3.9	2.5	0.8	0.5	0.0
Total domestic demand	1.3	–3.4	7.2	2.0	2.7	3.8
Exports of goods and services	6.6	–1.2	14.7	9.5	5.1	9.8
Imports of goods and services	4.4	–8.0	17.3	6.5	3.5	9.0
Net exports[3]	1.0	3.7	–0.6	1.8	1.0	0.6
Memorandum items						
Consumer price index (CPI)	4.7	2.8	3.0	4.0	3.4	3.0
Core CPI	4.3	3.6	1.8	3.2	3.1	3.0
Unemployment rate	3.2	3.6	3.7	3.4	3.4	3.4
Household saving rate[4]	2.9	4.6	4.3	3.1	3.8	4.1
Current account balance[5]	0.3	3.9	2.8	.2.4	1.3	1.1
Government budget balance[5, 6]	–1.5	–4.1	–1.1	–2.0	–1.0	0.0
General government balance[5]	3.0	–1.1	1.3	0.8	1.3	1.9
Net government debt[5]	–37.7	–39.0	–37.4	–38.3	–39.4	–40.7
Gross government debt[5]	30.1	33.8	33.4	33.3	36.3	36.8

1. Historical data, except the general government balance and net and gross government debt, which are instead estimates published in *OECD Economic Outlook*, No. 90 (November 2011).
2. Based on quarterly projections produced for *OECD Economic Outlook*, No. 90.
3. Contributions to changes in real GDP (percentage of real GDP in previous year).
4. As a percentage of disposable income.
5. As a percentage of GDP.
6. Consolidated central government budget, excluding the social security surplus. Figures for 2011-13 are the targets in the government's five-year plan.

Source: OECD Economic Outlook 90 Database.

disorderly sovereign default in the euro area or other shocks were to trigger a deep global recession, Korea would have scope to use fiscal stimulus, given its strong fiscal position. Over the medium term, though, the priority should be to maintain a low level of government debt in view of population ageing and the potential cost of possible rapprochement with North Korea (Annex A.1). Making the spending targets in the medium-term fiscal plan more binding would help maintain Korea's strong fiscal position.

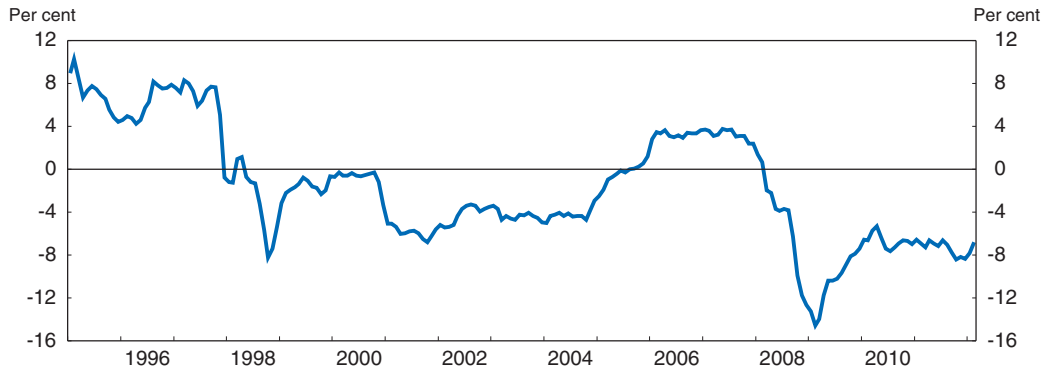
Monetary policy tightening has paused since mid-2011

The Bank of Korea waited until the recovery was firmly in place before beginning to tighten policy in the latter half of 2010. Consumer price inflation exceeded the central bank's 3.0 ± 1% target during six months in 2011 (Figure 1, Panel E), reflecting in part the rise in oil prices. By the latter half of 2011, the core consumer price index was rising by 3.4% (year-on-year). By early 2012, though, inflation slowed markedly, reflecting the growth slowdown.

The Bank has left the policy rate unchanged at 3¼ per cent since July 2011, citing uncertainty about the world economy (Bank of Korea, 2011). Monetary conditions are currently relaxed (Figure 2), reflecting low short-term real interest rates and the low level of the real effective exchange rate, although the degree of monetary accommodation has been reduced in recent months. Given that Korea is entering the fourth year of an expansion, with an unemployment rate of 3% in late 2011 and inflation expectations above the 3.0±1% inflation target range, monetary policy tightening should resume once the economy overcomes the current period of uncertainty. However, if the world economy were to experience a sharp downturn, monetary policy easing in Korea would be appropriate.

Figure 2. **Monetary conditions are relaxed**

Percentage difference with respect to the average since 1995[1]



1. An increase indicates a tightening of monetary conditions. The index uses weights of 1 on the real short-term interest rate (91-day CD rate), deflated by core inflation, and 0.3 on the real effective exchange rate.

Source: OECD Economic Outlook Database and Bank of Korea.

StatLink http://dx.doi.org/10.1787/888932592166

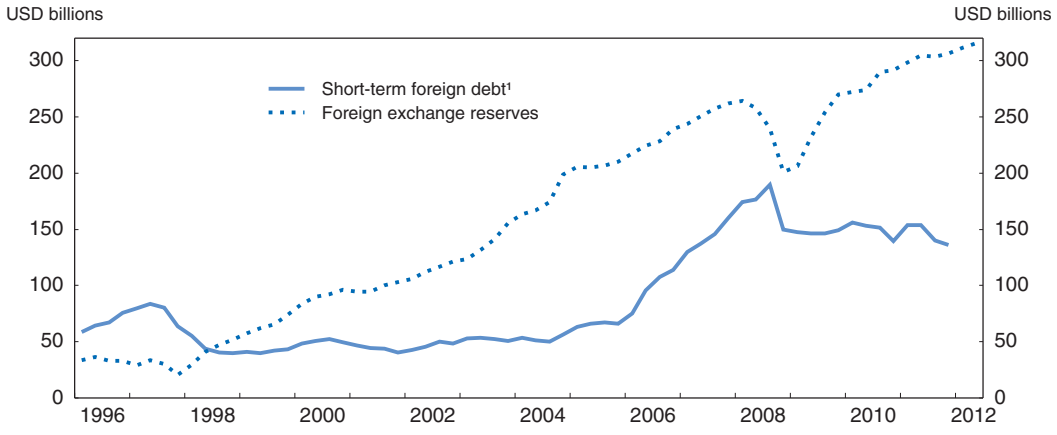
Exchange rate policy and capital flows

The required degree of policy tightening depends in part on the exchange rate. As an export-oriented and non-reserve currency country with an open capital account, Korea has been particularly sensitive to external shocks, whether financial or real, which caused capital flight and rapid currency depreciation during the 1997 and 2008 crises. The global

credit crunch in late 2008 effectively stopped the rollover of bank loans – an important source of funding for Korean banks – resulting in a plunge in the won and stock prices. Meanwhile, Korea's foreign exchange reserves fell from $258 billion to around $200 billion as the government supplied foreign exchange liquidity to the market. A bilateral currency swap agreement between the Bank of Korea and the US Federal Reserve in October 2008, followed by similar agreements with Japan and China, were the key to ending the crisis.

Korea's foreign exchange reserves have increased from $200 billion in late 2008 to $315 billion (28% of GDP) in early 2012, which will help protect it against future crises and improve its sovereign creditworthiness. Indeed, reserves are now more than double Korea's short-term foreign debt (Figure 3). However, holding reserves is costly, as they are typically invested in safe assets with low returns, rather than in more productive uses, thereby creating high opportunity costs. In addition, there are foreign exchange risks associated with sizeable holdings of foreign assets (Rodrik, 2006). Instead, swap agreements are an effective alternative, particularly as Korea expanded its agreements with Japan and China in 2011. Moreover, it is important to continue building a transparent and sound financial system to help maintain investors' confidence and better absorb shocks from abroad (2010 *OECD Economic Survey of Korea*).

Figure 3. **Foreign exchange reserves have risen while short-term foreign debt remains high**



1. Maturity of less than one year.
Source: Bank of Korea.

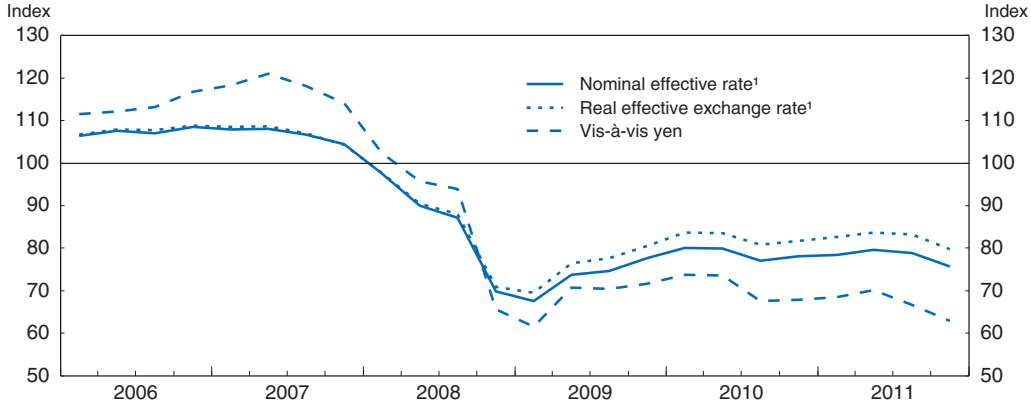
StatLink http://dx.doi.org/10.1787/888932592185

The won fell by 26% in real effective terms between early 2007 and the end of 2011 (Figure 4), leaving it 12% below its 1990-2011 average. According to the IMF, it was slightly undervalued by about 10% in mid-2011 (IMF, 2011) and the real effective exchange rate weakened by 4% between June and December 2011, in part due to the sovereign debt crisis in the euro area. The weaker won is supporting export growth. Won appreciation would benefit Korea by limiting inflationary pressures and promoting a more balanced expansion, and have positive spillover effects on other countries.

The won's exchange rate is also affected by a number of recent measures, including the levy Korea introduced in 2011 on non-deposit foreign currency liabilities of domestic banks and foreign bank branches to curb the volatility of capital flows. In addition, new regulations limit banks' foreign exchange derivative positions and restrict purchases by

Figure 4. **Exchange rate trends**

2005 = 100



1. Calculated *vis-à-vis* 48 trading partners. The real rate is calculated using consumer prices.

Source: OECD Economic Outlook Database.

StatLink http://dx.doi.org/10.1787/888932592204

Box 1. **Macroeconomic policy recommendations**

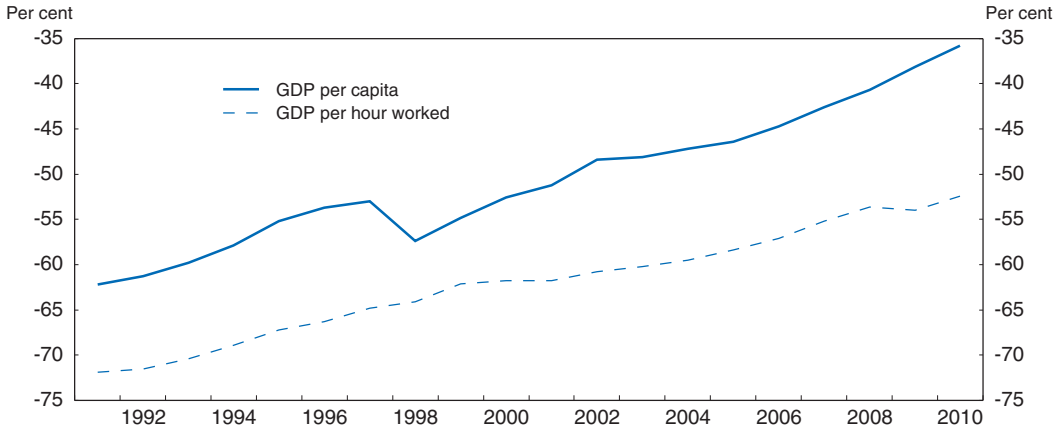
- Achieve the 2013 target of balancing the consolidated central government budget (excluding the social security surplus), if the baseline projection is realised, thereby maintaining a low level of government debt in order to cope with future spending challenges.
- If the risks in the euro area materialise and the world economy experiences a serious downturn, relax monetary policy and implement effective, short-term fiscal stimulus, focusing on employment, as during 2009.
- Resume monetary policy tightening once the economy overcomes the current soft patch and period of uncertainty so as to contain inflation near the mid-point of the 3 ± 1% target and anchor inflation expectations.
- Maintain a flexible exchange rate policy. Guard against an excessive increase in foreign exchange reserves.
- If capital flows are excessively volatile, specific actions, such as macroprudential measures, may be needed alongside appropriate monetary and fiscal policy, while seeking to preserve the benefits of free capital movements.

certain categories of financial institutions in Korea of foreign currency-denominated bonds issued by residents in the domestic market.

Policies to promote economic growth

Korea has been one of the fastest-growing OECD countries, with real GDP rising by more than 4% per annum during the past decade. Rapid growth narrowed the per capita income gap with the United States from 62% in 1991 to 36% in 2010, reflecting progress in closing the productivity gap (Figure 5). The convergence in income levels continued despite a slowdown in Korea's potential growth from 7% in 1995 to around 4% by 2010, as the contribution from trend labour productivity fell from about five percentage points to three as Korea moved closer to the technology frontier. In addition, the contribution from labour

Figure 5. **Korea continues to converge towards the United States**[1]



1. Distance from the United States, based on 2005 PPP exchange rates.
Source: OECD Going for Growth Database.

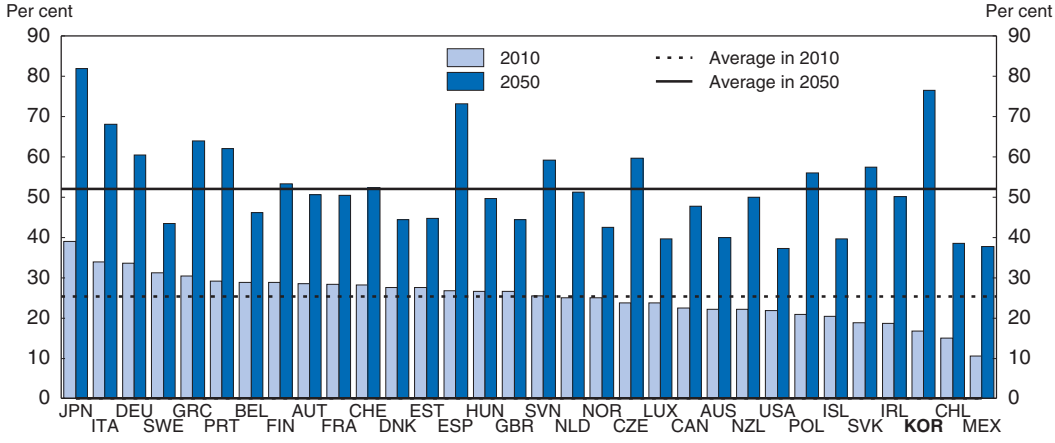
StatLink http://dx.doi.org/10.1787/888932592223

inputs has declined from two percentage points to one, as working-age population growth halved from 1.4% to 0.7%.

Sustaining the convergence process will become increasingly difficult, as the potential growth rate will fall further, in part as productivity growth continues to slow. Moreover, Korea faces the most rapid population ageing in the OECD area. Indeed, Korea, which currently has the third-youngest population, will have the second oldest by 2050 according to the elderly dependency ratio (Figure 6), reflecting its birth rate of only 1.2 children per woman, among the lowest in the world. Moreover, the total dependency ratio, including youth and elderly as a share of the 20-to-64-age group, will be the third highest in the OECD. Korea's working-age population is projected to peak in 2016, and then fall by more

Figure 6. **Population ageing in Korea is projected to be the fastest in the OECD area**

Population aged 65 and over as a share of the population aged 20 to 64



Source: Statistics Korea, *Population Projection for Korea* (2011 version) and *OECD Demography and Population Database.*

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than a quarter by mid-century. With a falling labour force, the Korea Development Institute estimates that Korea's potential growth rate will drop below 2% during the 2030s.

Sustaining Korea's growth potential in the face of demographic headwinds requires a wide range of policies, including:

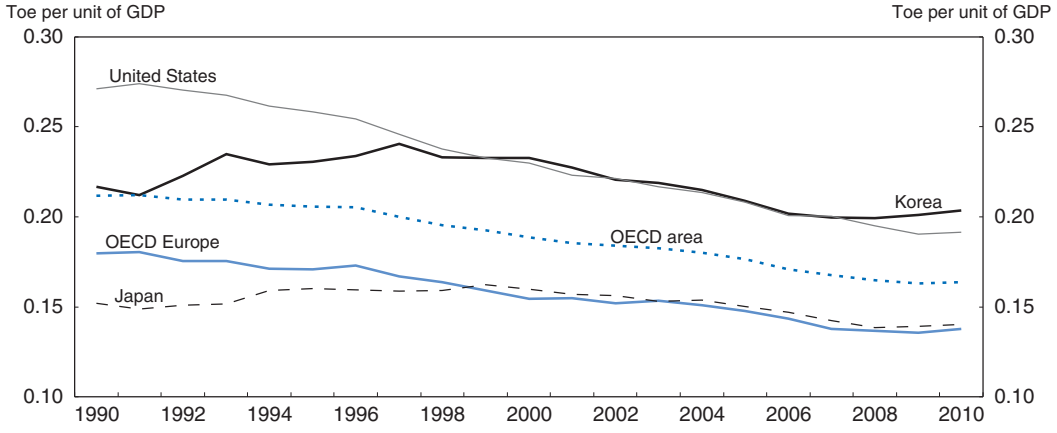
- "Low Carbon, Green Growth", which the President identified in 2008 as the vision to guide Korea's development over the next 50 years.
- Measures to increase labour force participation, particularly of women, youth and older persons, and to break down the dualism that limits the human capital of non-regular workers.
- Financing social spending, which will rise with population ageing, through tax measures that limit the negative impact on growth potential.
- Further improving the education system to boost productivity growth.
- Promoting Korea's convergence to the high-income countries by developing the service sector, where productivity is only about half of that in manufacturing.

Achieving low carbon, green growth

Despite a decline since 1997, Korea's energy intensity is still the sixth highest in the OECD area (Figure 7), reflecting its concentration in energy-intensive industries. One of the goals of Korea's Green Growth Strategy is to "attain energy independence", which implies a fundamental transition in Korea's economic structure, given that net imports accounted for 86% of total primary energy supply in 2009. Such a shift would have great potential for creating new industries, but will also impose heavy transition costs. Implementing the Strategy, including the 2020 greenhouse gas (GHG) emission reduction target (see below), therefore requires a policy framework that provides appropriate incentives to induce the necessary restructuring in a cost-effective way.

Figure 7. **Korea's energy intensity is declining but remains well above the OECD average**

Tonnes of energy per unit of GDP in thousand 2000 USD using PPP exchange rates



Source: IEA/OECD, *Energy Balances of OECD Countries 2011*, IEA/OECD, Paris.

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The Five-Year Plan for Green Growth

The Five-Year Plan (2009-13) contains about 600 projects and a total budget of 108.7 trillion won (10% of 2009 GDP). Public R&D accounts for 11% of the total, motivated by the need to overcome market failures related to the high degree of uncertainty and long time horizons in green innovation, which hinder private-sector research. In 2009, private firms were involved in nearly two-thirds of the 4 732 R&D projects in the Five-Year Plan, although their financial contributions amounted to only 8% of total outlays. Greater involvement by business enterprises is needed to advance green research and make it a driver of private-sector innovation.

The government is pursuing various approaches to supply funds and overcome financial constraints. Bank loans to green industries amounted to 2% of their corporate lending during the first half of the Five-Year Plan, with state-owned banks accounting for three-quarters of the loans. Such lending was encouraged by large credit guarantees provided by public institutions. Meanwhile, investment in green industries through the venture capital market nearly doubled between 2009 and 2011, rising to around half of total venture capital investment. Public funds were invested in 83 venture businesses. Such efforts should be pursued cautiously to limit the risks inherent in "picking winners", which could lock Korea into inferior technologies. A well-functioning certification system to determine which firms are truly green is also essential. Korea should channel more of these funds through existing market-based systems and commercial institutions, thereby reducing the role of state-owned banks and public funds (OECD, 2011f).

Renewable energy has a key role to play in a low-carbon economy. The government replaced the Feed-In-Tariff system with a Renewable Portfolio Standard (RPS) in 2012, with the target rising from an initial 2% of total electricity to 10% by 2022. While an RPS tends to have a stronger impact on innovation (Johnstone *et al.*, 2010), it creates a risk of excessive use of low-quality renewables, based on their environmental impact and the potential for technological gains, making it important to closely monitor technological developments in this market.

Introducing market instruments to promote green growth

The most important tool to promote green innovation is to introduce a market instrument that puts a price on carbon, primarily through a cap-and-trade emissions trading scheme (ETS), complemented by a carbon tax on small emitters (OECD, 2011f). Such a price is also necessary to achieve Korea's GHG emission reduction target in a cost-effective manner. Between 1990 and 2008, Korean emissions doubled, far outstripping the 24% rise in global emissions. In 2010, Korea set an objective of reducing emissions by 30% by 2020 relative to a "business as usual" scenario, implying a 4% cut from the 2005 level. Achieving the target through an ETS would cost only about 40% as much as relying on direct regulations (Lee, 2009).

It is essential to introduce a carbon price, as it is the most cost-effective way to meet Korea's 2020 GHG emission target and create new growth engines, while avoiding solutions based on regulations and subsidies. The government introduced legislation in 2011 to create a cap-and-trade ETS in 2015 covering firms with annual emissions of more than 25 thousand tonnes. In 2011, this threshold included 497 firms, accounting for around 60% of total emissions. Less than 5% of the permits may be auctioned, with the allocation of the remainder yet to be decided. Grandfathering permits would be problematic as it would

provide scope for windfall profits for existing firms, potentially resulting in unfair competition for new entrants. The ETS should include a timetable for shifting to an auction system, which would generate revenue that could be used *inter alia* to offset the impact of the ETS on firms and consumers, reduce more-distorting taxes or achieve fiscal consolidation. While the ETS will control the emissions of large emitters, taxation will cover smaller and more diffuse sources of pollution such as households and small businesses. It is important, though, to minimise overlap and complicated interactions between an ETS and a carbon tax, which would raise costs and uncertainty about the overall outcome.

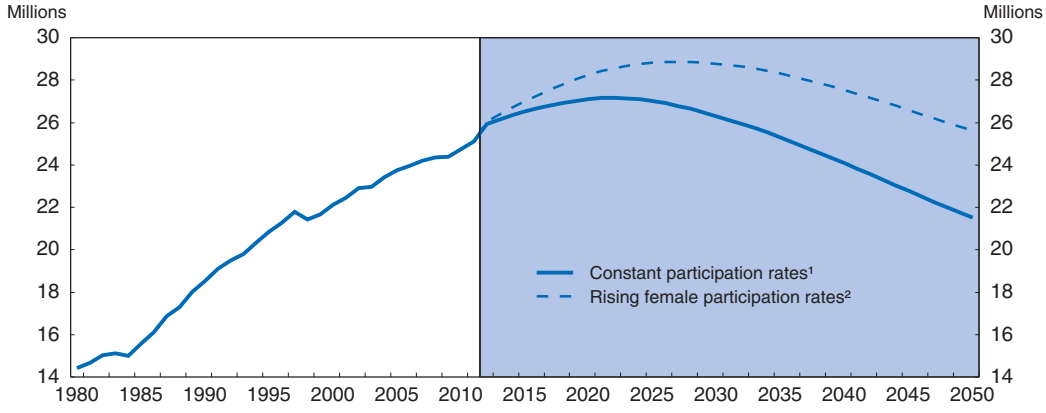
However, the business sector remains critical of the planned ETS, due in part to concerns about international competitiveness. To cope with this so-called "carbon leakage" problem, transitional assistance to some strongly-affected industries may be appropriate. However, overly generous support would maintain current production patterns and slow the transition to low-carbon technologies.

Another priority is to reform electricity pricing, as Korea's low price increases energy use and GHG emissions. Indeed, electricity consumption per unit of GDP in Korea in 2009 was 1.7 times higher than the OECD average. Moreover, prices vary significantly between sectors, creating significant distortions. Electricity prices should fully reflect their production costs in each sector.

Labour market measures to promote growth

Rapid population ageing implies a substantial fall in the labour force. If participation rates were to remain at their current levels for each age group, the labour force would peak at 27.2 million in 2022 and then fall by 21%, to around 21.5 million, by mid-century (Figure 8). By that point, there would be only 1.2 persons in the labour force per elderly person, compared with 4.5 in 2010, imposing a heavy burden on workers to finance social spending.

Figure 8. **Long-term projections of the labour force**



1. The participation rates for men and women are assumed to remain at their current levels for each age group.
2. Female participation rates are assumed to reach current male rates in each age group by 2050.

Source: Statistics Korea, *Population Projection for Korea* (2011 version) and *Economically Active Population Survey*, and OECD calculations.

StatLink http://dx.doi.org/10.1787/888932592280

The most important strategy to mitigate demographic change would be to increase the female labour force participation rate. For women between the ages of 25 and 54, the rate was 62% in 2010, the third lowest in the OECD area. If the female participation rate in Korea were to converge to the current level for males for each age group by 2050, the labour force would only decline to around 25.6 million, almost 19% higher than in the case of unchanged participation rates, resulting in a ratio of 1.4 workers per elderly person. Raising the female participation rate requires a comprehensive approach. *First*, the gender wage gap, the highest in the OECD area, should be narrowed by reducing the high share of non-regular employment and making greater use of performance-based pay. *Second*, the availability of affordable, high-quality childcare should be increased (see below). *Third,* maternity leave should be lengthened from 90 days and the take-up of maternity and parental leave increased. *Fourth*, expanded flexibility in working time would make it easier to combine paid employment with family responsibilities, given that total working hours in Korea are the longest in the OECD area.

Korea's participation rate for young people is one of the lowest in the OECD area. Although this reflects the large share in tertiary education, it is also a result of the mismatch between the skills taught in school and those demanded by firms (see below). In addition, there is some scope to increase the participation rate for older workers, or at a minimum, prevent a decline as the pension system matures. It is also important to more effectively utilise older workers, who tend to retire from firms by age 55. More than one-third become unemployed. Another 13% of departing employees become self-employed, primarily in services with low productivity. As a result, one-third of workers over age 50 are self-employed, compared to 13% of those under that age. Given strict employment protection, firms set mandatory retirement ages so that they can dismiss older workers once their seniority-based wages surpass their productivity. Establishing a minimum age at which firms can set mandatory retirement and then gradually raising it would put pressure on firms to adjust wages in line with productivity as workers grow older. The ultimate goal should be to abolish firms' right to set a mandatory retirement age, as has been done in some other OECD countries. In addition, the retirement allowance required by firms, which also promotes the early departure of employees, should be replaced by the company pension system.

Pro-growth tax reform to finance increasing spending

Korea had the second-lowest level of public spending, at 31% of GDP on a general government basis in 2010, compared to the OECD average of 46%. Under current policies, however, population ageing alone is projected to boost public social spending from 7½ per cent of GDP at present to as high as 20% by 2050 (Won *et al*., 2011). While there is some scope to squeeze spending in other areas, Korea's low tax burden – at 25.1% of GDP in 2010 (Table 2) – will need to rise to finance such spending, in addition to a targeted expansion of some social welfare programmes discussed below. Direct taxes on households are particularly low, as only 60% of workers pay personal income tax due to generous deductions and exemptions, aimed in part at creating a level playing field with the self-employed. Social security contributions are also far below the OECD average, reflecting relatively low contribution rates and weak compliance with the social insurance schemes.

The overall "tax wedge" on labour, including social security contributions, was only 20% in 2010 (Figure 9). Low taxes on labour contribute to high labour inputs in Korea, which are 37% higher relative to the population than the United States, offsetting much of the

Table 2. **The tax mix in OECD countries**

Tax revenue as a per cent of GDP

	2000		2010			Change[1]
	Korea	OECD	Korea	Rank	OECD	2000-10
Direct taxes on households	3.3	9.4	3.6	26	8.7	0.3
Direct taxes on firms	3.2	3.5	3.5	4	2.8	0.3
Social security and payroll	3.8	9.3	5.8	25	9.2	2.0
Goods and services	8.7	11.3	8.5	26	10.7	–0.2
Property	2.8	1.6	2.9	7	1.6	0.1
Holding taxes	0.6	0.9	0.8	14	1.1	0.2
Taxes on property transactions	2.0	0.6	1.8	1	0.4	–0.2
Estate, inheritance and gift taxes	0.2	0.1	0.3	5	0.1	0.1
Other	0.8	0.2	0.9	3	0.2	0.1
Total	**22.6**	**35.3**	**25.1**	**28**	**33.2**	**2.5**

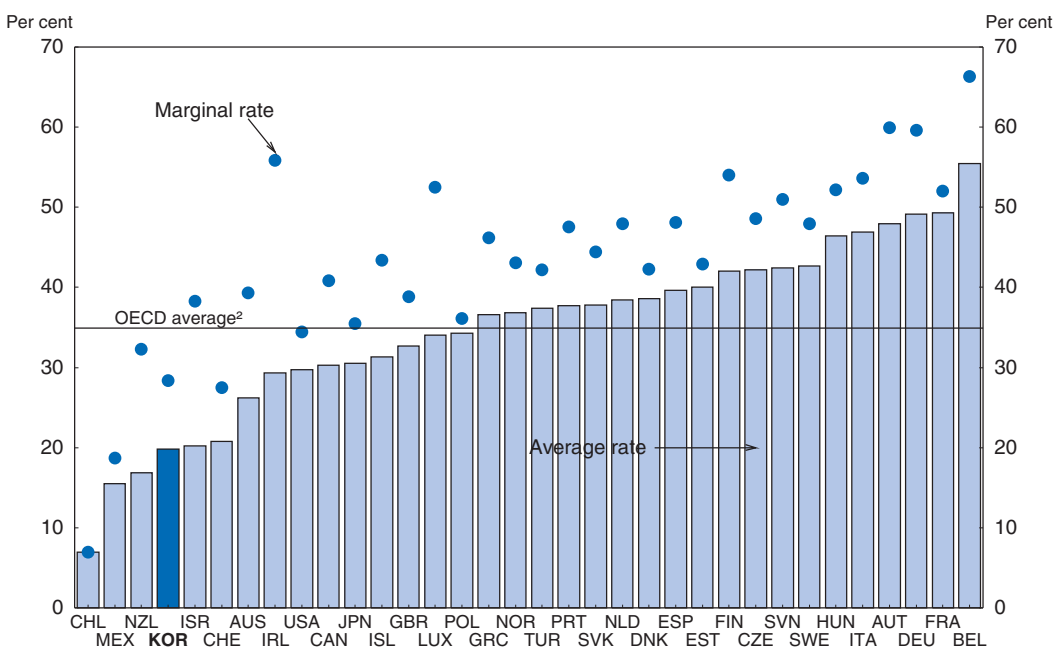
1. For Korea in percentage points.

Source: OECD (2011), *OECD Revenue Statistics 1965-2010*.

productivity gap (Figure 5). Cross-country studies by the OECD demonstrate that taxes on labour reduce employment, saving and capital investment, thereby lowering potential growth. On the other hand, a low tax burden promotes jobs and growth by enhancing incentives for FDI inflows, education and entrepreneurship. Low corporate income tax rates are also beneficial for growth (2008 *OECD Economic Survey of Korea*). Korea reduced its statutory rate from 30.8% (including local governments) in 2000 to 24.2% in 2010, slightly below the OECD average.

Figure 9. **Average and marginal tax wedges on labour**[1]

As a per cent of gross labour costs in 2010 for a worker with average earnings



1. The tax wedge measures the difference between total labour compensation paid by the employer and the net take-home pay of employees as a ratio of total labour compensation.
2. Average of the 34 countries' average tax wedges.

Source: *OECD Tax Database* (*www.oecd.org/ctp/taxdatabase*).

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It is essential to finance rising spending through revenue increases that minimise the negative effect on growth. Indeed, the economic impact of higher taxes depends on how the revenue is raised as well as on how much is raised. Pro-growth tax policy calls for limiting any increase in the tax wedge on labour income and keeping a low corporate tax rate. At the same time, base-broadening to increase the share of wages subject to income tax from around one-half at present toward the OECD average of more than 80% would reduce distortions and help keep marginal tax rates low.

Keeping direct taxes low implies that revenue increases should come primarily from indirect taxes, notably the value-added tax (VAT), which has a smaller negative effect on labour supply. Korea's VAT rate is currently 10%, far below the OECD average of 18%. Another advantage is that the VAT is simple and relatively difficult to avoid or evade in Korea, and the VAT tax base is the ninth broadest in the OECD area. However, a shift in the tax structure from income to consumption taxes would reduce the tax system's already low redistributive impact, with negative implications for income equality (see below). Nevertheless, using the VAT to raise revenue while relying on the earned income tax credit (EITC) and well-targeted social spending to achieve income distribution goals would be the best approach.

Environmental taxes and revenues from auctioning ETS permits are also good candidates for increasing revenue, as noted above, as part of the Green Growth Strategy. Taxes on property-holding are a third option to raise revenue, as they have less negative impact on economic activity than direct taxes (Arnold *et al.*, 2011). Increasing property-holding taxes would also promote the efficient use of land and address persistent concerns about real estate prices.

Upgrading compliance with social insurance contributions, particularly for non-regular workers and employees at small firms, is important to finance ageing-related expenses and allow social security systems to play their intended roles. Beginning in 2011, the collection of contributions was combined under the National Health Insurance (NHI). Transparency about income and compliance could be further improved by having the National Tax Service collect social insurance contributions.

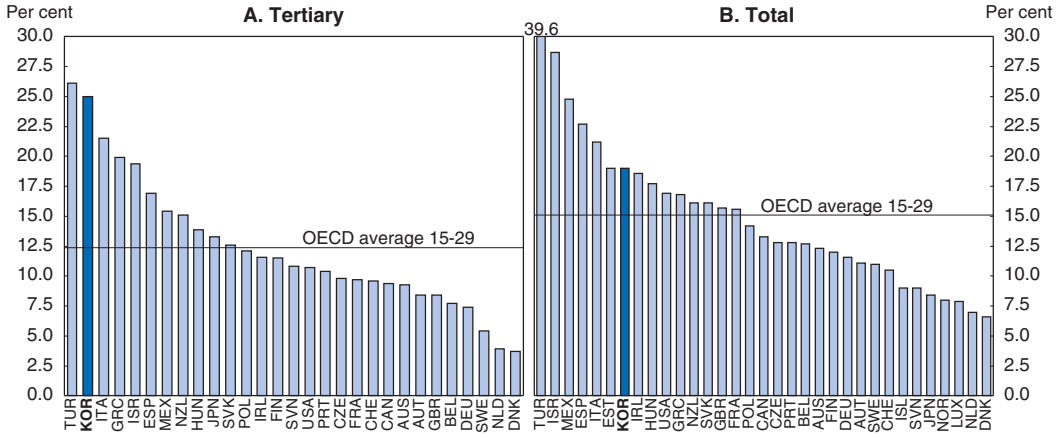
Enhancing the contribution of the education system to growth

Addressing the overemphasis on tertiary education by upgrading vocational education

In 2011, 72.5% of high school graduates advanced to tertiary education, but in recent years only about half of university graduates have found regular jobs. Consequently, 25% of tertiary graduates under the age of 30 in 2009 were inactive, engaged neither in employment, nor in education, double the OECD average (Figure 10). Meanwhile, SMEs face labour shortages. Addressing the problem of overemphasis on tertiary education is difficult because great importance is attached to academic credentials. In a 2010 government survey, 93% of parents said that they expect their children to obtain at least a four-year university degree. Tertiary education has become the norm regardless of students' capabilities or career aspirations. It is necessary to shift the focus from chasing the prestige of high-ranking universities to rewarding the acquisition of skills demanded by firms, in part by increasing the weight of performance in determining wages. Reducing labour market dualism would also reduce incentives for tertiary education in order to avoid non-regular employment. Moreover, the prevalence of dualism explains the preference of many tertiary graduates to become inactive while waiting for regular employment.

Figure 10. **The share of inactive youth with tertiary education is high in Korea**

The share of the 15-to-29-age group neither in employment nor in education in 2009[1]



1. Data on the category ISCED 4, which captures programmes that straddle the boundary between upper secondary and post-secondary education, are not available in Korea and eleven other OECD countries. This category could potentially include persons in an apprenticeship or training outside of school. The numbers in the chart therefore overestimate the number of youth who are inactive in these countries.

Source: OECD (2011c), *OECD Education at a Glance 2011* and Statistics Korea, *Economically Active Population Survey*.

StatLink http://dx.doi.org/10.1787/888932592318

To reduce overemphasis on tertiary education, vocational education should be improved at the secondary and tertiary levels. The share of students in vocational high schools fell from 42% in 1995 to 24% in 2010, while the share of vocational high school graduates going to university rose from 19% to 71%. To upgrade vocational training, the government introduced 28 "Meister" schools, in which workplace training plays a key role, thereby facilitating the transition to the job market. Further increasing the number of such schools as planned should be a priority. At the tertiary level, colleges, which have focused on vocational education, have been losing students to universities, which have entered the vocational territory of colleges to sustain their enrolments. Universities should be discouraged from offering degrees in purely vocational fields, such as cosmetology, while the role of colleges should be enhanced by aligning their curricula with the national technical qualifications (NTQ) and preparing students for NTQ exams. Streamlining the complicated qualifications system, drawing on business-sector views, would help in this regard.

Improving the quality of tertiary education and its contribution to innovation

The development of human resources through tertiary education needs to be exploited fully to meet demographic and competitive pressures. The rapid quantitative expansion has inevitably led to some deterioration in the quality of Korea's tertiary sector, which does not score high in international rankings. The projected one-third drop in the tertiary-age population by 2030 provides an opportunity to shift the focus from quantity to quality and from inputs to outcomes. The government has launched several recent initiatives towards this goal:

- Korea's leading university, Seoul National University, was incorporated to allow it more autonomy. If this proves successful, other public universities should also be incorporated.
- The government is reducing public funds to universities ranking in the bottom 15% beginning in 2012. Although the government's leverage is limited by the fact that all are private universities that rely primarily on tuition fees, the university assessments will be

publicly announced, thus influencing students' choice of university and, ultimately, universities' financing.

- The government expects that most tertiary institutions will participate in a recently launched accreditation system by 2014. Accreditation should be made effective based on criteria including output measures, such as the employment of graduates, and evaluations by the business sector. Although accreditation is not mandatory, most universities are expected to participate because accreditation results will be publicly disclosed and linked to government funding programmes from 2014.

In addition, it is important to strengthen competition by enhancing transparency about outcomes. For example, the government website with information about universities' performance could provide more details about specific departments to better inform student decisions. Korea has few foreign tertiary institutions and foreign students account for 2% of tertiary students in Korea. In contrast, 7% of Korean tertiary students are studying overseas, making it the leading source among OECD countries of international students. Reforms to attract foreign institutions and students to Korea would increase the quality of its tertiary education.

Korean universities accounted for only 1% of R&D funding and performed 11% of R&D in 2009, the second lowest share in the OECD, despite the fact that they account for three-quarters of PhDs. Increasing the effectiveness of R&D requires expanding the interaction between researchers in business, government and universities. Given that transfers of knowledge and technology takes place to a large extent through people, it is important to promote the mobility of researchers between sectors. In addition, the share of government R&D funding for universities that is allocated competitively should be increased.

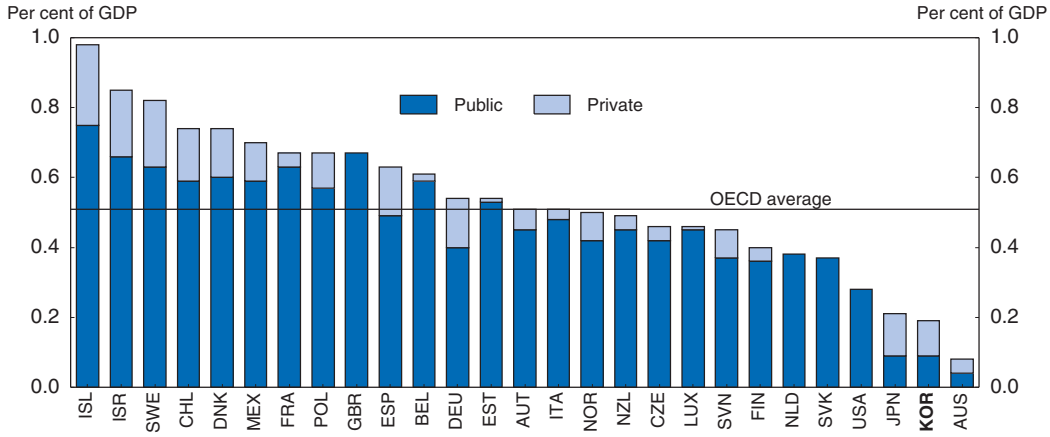
Expanding early childhood education and care (ECEC)

Investment in ECEC offers a high return by boosting the later achievement of children. Korea has expanded public outlays for ECEC by broadening the eligibility for tuition subsidies from the bottom 10% of households in the income distribution to the lower 70%. Nevertheless, spending on pre-primary education was only 0.2% of GDP in 2008, the second lowest in the OECD area (Figure 11). In addition, the public-sector share was only 46%. Consequently, public expenditure on pre-primary education was also the second lowest among OECD countries.

Korea needs to address the intertwined problems of the affordability of childcare, a lack of places in higher-quality public centres and excess capacity in private childcare, which tends to be lower quality. Beginning in 2012, the government provides support for all five-year-olds enrolled in childcare centres and kindergarten, regardless of household income. Further measures are needed. *First*, the top priority is to extend support for ECEC to all three and four-year-olds starting in 2013, as planned. *Second*, the educational content of childcare should be upgraded by effectively implementing the common curriculum for five-year-olds in childcare and kindergarten as planned in 2012 and then harmonising programmes for younger children. Childcare and kindergarten, which are currently administered by different ministries, should be gradually integrated to promote quality and reduce costs through streamlining. *Third*, the capacity of public kindergartens, which account for only a quarter of students, should be expanded by including public kindergartens in primary schools. There is scope to finance increased outlays for ECEC through reallocations within the overall education budget, particularly as school rolls

Figure 11. **Spending on pre-primary education is low in Korea**

In 2008



Source: OECD (2011c), *OECD Education at a Glance 2011*.

StatLink http://dx.doi.org/10.1787/888932592337

shrink. Indeed, outlays per student in kindergarten were only 37% of that in primary and secondary schools, well below the OECD average of 70%.

The current imbalances between supply and demand for public and private centres should also be addressed through a closer alignment of the quality standards and regulations so that all children are able to attend ECEC institutions that offer similar high quality across public and private education settings. The excess demand for public childcare should be met primarily by upgrading the quality of private institutions, which care for nearly 90% of the enrolled children. Quality in private institutions should be improved by making accreditation mandatory and raising its requirements. Private childcare centres wishing to improve quality and attract children to fill their empty places have been blocked by fee ceilings. The government should relax the price ceilings and entry barriers to promote competition, while partially offsetting higher tuition fees through increased subsidies to parents (OECD, 2008).

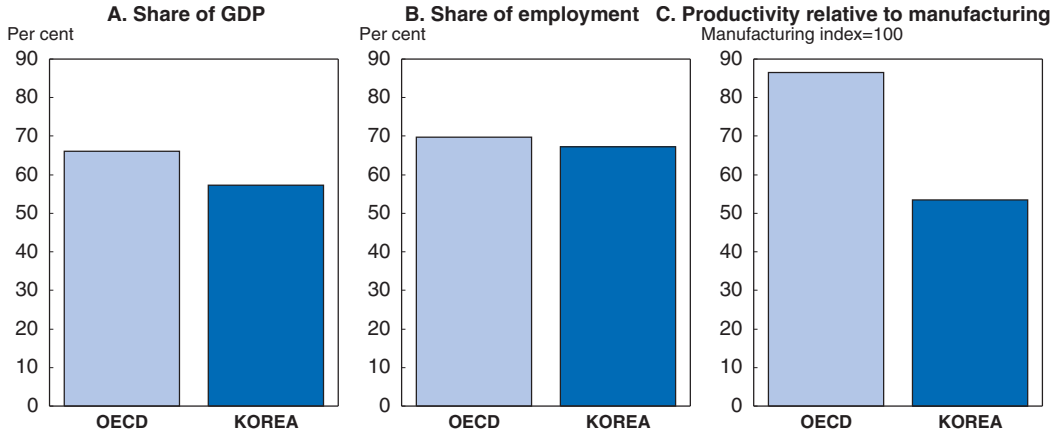
Developing the service sector

Manufacturing has driven Korea's rapid economic development, making it a leading industrial power. Indeed, Korea is now the world's leading shipbuilder and fifth-largest car producer. In contrast, its service sector is the second smallest in the OECD area, accounting for 57% of GDP (Figure 12). Only four of its 30 largest enterprises are in services. The share of employment in services in Korea is closer to the OECD average, reflecting the sector's role as a *de facto* safety net for older workers forced to retire from firms at a relatively young age. Consequently, productivity in services was only 53% of Korea's manufacturing sector in 2008, far below the OECD average of 87%. Converging to the income levels in the most advanced countries requires making services a second driver of growth. Over the past 25 years, nearly 85% of GDP growth in high-income countries came from services (McKinsey, 2010). Developing a strong service sector would develop high-quality jobs that would better utilise Korea's tertiary graduates.

Korea's economic structure is a legacy of a development strategy that focused on manufacturing, thereby siphoning capital, talent and other resources away from services. For example, R&D investment in services accounts for only 7% of total R&D outlays by

Figure 12. **The service sector**

In 2008, based on 2005 prices for value added



Source: OECD National Accounts Database and *OECD STI Database*.

StatLink http://dx.doi.org/10.1787/888932592356

firms, compared to an average of 25% in the G-7 economies. Moreover, the government allocates only 3% of its R&D budget to services. To boost R&D in services, the government introduced R&D tax credits for 11 knowledge-based service sectors, including health care, in 2012. Manufacturing firms benefit from a range of policies, including tax benefits and lower electricity charges. The first priority is to level the playing field, preferably by reducing the gaps in regulation and benefits between manufacturing and services. To that end, a comprehensive quantification of the various forms of explicit and implicit support to manufacturing would be helpful. In addition, a stronger won would promote the development of some non-tradable services by boosting domestic demand.

The government's 2009 plan to develop services included health care, education, green financing, software and tourism. Broader policies to strengthen competition in services are more effective and less risky than industry-specific measures. As the government noted, "Overly strict regulations are also obstructing investment and competition" in services (MOSF, 2009). The keys to stronger competition include eliminating domestic entry barriers, accelerating regulatory reform, upgrading competition policy and reducing barriers to trade and inflows of FDI. The government has reduced entry barriers, as reflected in the improvement in Korea's ranking in the "cost of starting a new business" from 126th in the world in 2008 to 24th in 2011 (World Bank, 2011). Regulation in network industries has also fallen, although it remains well above the OECD average (OECD, 2012).

Strengthening links to the world economy would also boost productivity in services. Korea's integration in the world economy is still very low in terms of import penetration, the share of foreign workers and the stock of inward FDI. Korea has taken steps to enhance its openness through free trade agreements (FTAs), including those with the EU and the United States. FTAs may also help boost the stock of inward FDI from its 2010 level of 13% of GDP, the third lowest in the OECD area. Moreover, FDI in services is only 6% of GDP in Korea compared with an OECD average of 37%. To encourage inflows, Korea should further relax FDI restrictions, including foreign ownership ceilings in key services, and liberalise product market regulations. In addition, it is important to remove any obstacles to cross-border M&As and foster a foreign investment-friendly environment by enhancing the transparency of tax and regulatory policies and reforming the labour market (see below).

Problems in services are linked to those of SMEs, which account for about 90% of service-sector employment. The weakness of SMEs prompted the government to ratchet up support from already high levels during the 2008 crisis. Extensive public support for SMEs, particularly in manufacturing, has blunted competitive pressures, slowed reform and reduced the efficiency of resource allocation. The increased government assistance to SMEs, including public loan guarantees, was ratcheted up during the 1997 and 2008 crises, exacerbating moral hazard problems and increasing SMEs' reliance on public assistance. It is essential to continue to streamline such support to promote the restructuring of SMEs and to remove the obstacles inhibiting their expansion. Supporting non-viable firms will act as a drag on Korea's growth potential.

Box 2. **Key policy recommendations to promote economic growth**

- Implement the Green Growth Strategy through a price on carbon, primarily an ETS with permits auctioned and a carbon tax covering small emitters, thereby promoting green innovation and achieving the 2020 target to reduce GHG emissions in a cost-effective manner.
- Overcome market failures that limit R&D and funding of green businesses through carefully-designed policies that limit the risk of government failure.
- Set electricity prices in line with production costs to reduce the high level of electricity consumption.
- Increase the female participation rate by expanding the availability of affordable, high-quality childcare, promoting the use of maternity and parental leave, encouraging family-friendly workplaces and reducing labour market dualism.
- Help older workers to remain longer at firms, in part by moving away from mandatory retirement.
- Rely primarily on indirect taxes, notably the VAT, environmental taxes and property-holding taxes, to finance rising government spending, while keeping taxes on labour income low to promote employment and growth.
- Improve the quality of vocational education, thereby helping to resolve the issue of overemphasis on tertiary education and mismatch problems that limit the labour participation rate for younger workers.
- Upgrade the quality of tertiary education by ensuring adequate accreditation procedures, enhancing transparency and promoting internationalisation.
- Enhance the contribution of higher education to innovation by promoting links with government and business research institutes and increasing the share of government R&D funding that is allocated competitively.
- Expand investment in ECEC to achieve the objective of free education for children aged three to five and upgrade its quality, in part by mandatory accreditation and by relaxing fee ceilings on private childcare centres.
- Develop the service sector by leveling the playing field with manufacturing and strengthening competition by eliminating domestic entry barriers, accelerating regulatory reform, upgrading competition policy and reducing barriers to trade and inflows of FDI. In addition, assistance to SMEs should be scaled back.
- Comprehensively quantify the various forms of explicit and implicit support to manufacturing as a first step to leveling the playing field.

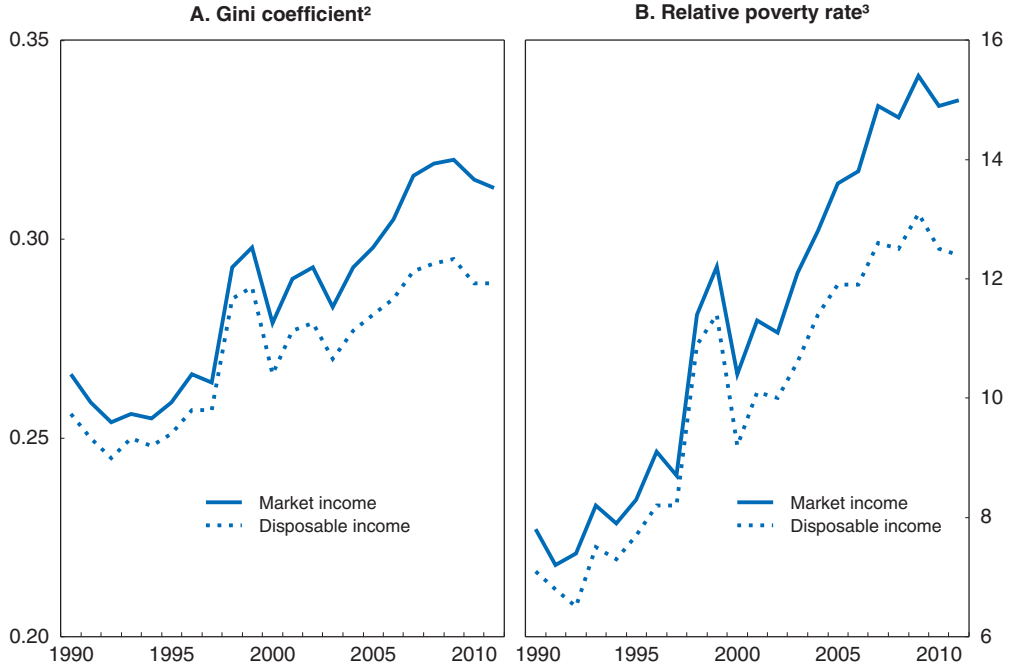
Policies to promote social cohesion by addressing rising income inequality and relative poverty

Promoting social cohesion may contribute to sustaining Korea's long-term growth potential. Income inequality has risen to the top of Korea's political agenda, driven by such issues as high university tuition fees and labour market dualism. Until the 1997 Asian financial crisis, Korea's income distribution stood out as one of the most equitable among developing countries. However, income inequality, as measured by the Gini coefficient, has been on an upward trend until 2009 (Figure 13), when it reached the OECD average. Moreover, the ratio of the top quintile to the bottom is 5.7, above the OECD average of 5.4. Meanwhile, relative poverty – the share of the population living on less than half of the median income – rose to 15% in 2008, the seventh highest in the OECD area. While economic growth can help reduce income inequality and poverty, Korea's experience shows that achieving a high growth rate is not sufficient in itself to address inequality and poverty.

As Korea has become increasingly integrated in a globalised economy, it has faced many of the same forces that have led to rising inequality in other countries. Yet, Korea stands out for a number of reasons:

- Social spending, which plays an important role in reducing inequality and poverty in most OECD countries, is low in Korea.
- Korea's dualistic labour market results in high inequality in wage income.
- Low productivity in services, which employ 70% of the labour force, reinforces wage inequality.
- The large share of private spending in education and health increases the impact of socio-economic factors on educational and health outcomes.

Figure 13. **Inequality has been increasing in Korea**[1]



1. For urban households with at least two persons.
2. The Gini coefficient can range from 0 (perfect equality) to 1 (perfect inequality).
3. Relative poverty is defined as the share of the population that lives on less than half of the median income.

Source: Statistics Korea.

StatLink http://dx.doi.org/10.1787/888932592375

Increasing social spending gradually to promote social cohesion

Public social spending was 7.6% of GDP in 2007, well below the OECD average of 19%, reflecting Korea's traditional reliance on family and firms to provide support, its low unemployment rate and its relatively young population. However, public social spending increased at an 11% annual rate in real terms between 1990 and 2007, the fastest in the OECD area. Given the impact of ageing, Korea should be cautious in expanding social welfare programmes.

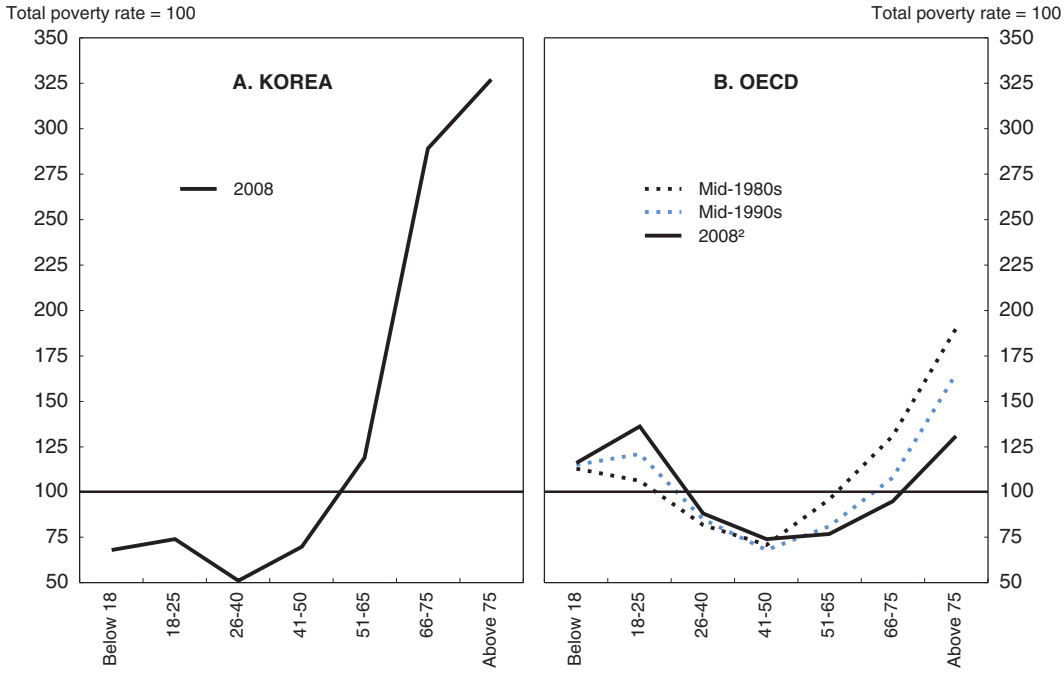
The limited coverage of social assistance and insurance and unemployment benefits (see below) leaves large gaps in the social safety net. Benefits for families, such as child allowances and childcare support, amounted to only 0.5% of GDP, the lowest in the OECD and well below the OECD average of 2.2% (OECD, 2011a). The main social welfare programme, the Basic Livelihood Security Programme (BLSP), covers only 3% of the population, far below the 15% living in relatively poverty, reflecting strict eligibility requirements that include income, assets and the possibility of assistance from relatives. Benefits amount to only 0.9% of GDP. In addition to the low level, social spending is not well targeted on low-income households: only a quarter of cash benefits from the government go to the poorest 20% of the population. Consequently, Korea's tax/benefit system is the least effective among OECD countries in promoting equality. Indeed, it reduces the relative poverty rate by only 2.5 percentage points, the lowest in the OECD area, compared to an OECD average of 15 points. Relaxing the eligibility conditions for the BLSP is thus a priority. Work incentives should be enhanced by separately withdrawing the various benefits offered by the BLSP, such as housing and education, to reduce negative work incentives for employment. Another key tool is the EITC introduced in 2008, which is likely to be particularly effective in Korea. However, it is relatively limited thus far, providing benefits to 0.6 million households (3.6% of the total) in 2009, with an average payment of around $680 per year. Total payments amounted to only 0.04% of GDP. The EITC was extended in 2012 to childless households and some self-employed workers, while the income ceiling on eligibility has been increased, nearly doubling the number of recipients since 2009.

The pension system

Public spending on old-age benefits was 1.6% of GDP in 2007, a quarter of the OECD average, reflecting the fact that the National Pension Scheme (NPS) was only introduced in 1988. Consequently, only one-fifth of the elderly receive pensions, which are only partial. The limited scale of pension provision and social welfare explain why nearly one-half of the elderly live in relative poverty, the highest proportion among OECD countries. In contrast, the poverty rate of the elderly is close to the national rate in the OECD area (Figure 14). The Basic Old-Age Pension System, introduced in 2008, provides assistance to elderly persons who meet the income and asset criteria. Around 70% of the elderly receive the benefit, which is set at about 5% of the average wage, far below the minimum cost of living at 20%. A larger benefit that is more targeted at low-income elderly would be more effective in reducing poverty.

The maturation of the NPS will eventually reduce poverty among the elderly. Beginning in 2028, retirees with a full 40 years of contributions will begin receiving benefits, although the replacement rate will be only 40%, well below the OECD average of 58% (OECD, 2011e). Contributions will have to be increased to finance even this low replacement rate. The need for higher contributions would be limited by accelerating the

Figure 14. **The rate of relative poverty by age group**[1]



1. The figure shows the poverty rate for each age group using an index, with the rate for the entire population set at 100. The poverty threshold is set at 50% of median income of the entire population. The OECD average includes 20 member countries.
2. Data refer to the most recent year in the late-2000s (2008 for most countries).

Source: OECD Database on Income Distribution and Poverty (www.oecd.org/els/social/inequality).

StatLink http://dx.doi.org/10.1787/888932592394

planned increase in the pension eligibility age from its current level of 60 to 65 in 2033, and by raising it further.

In addition to a low replacement rate, the ability of the NPS to reduce poverty among the elderly is weakened by a number of other factors. *First*, 30% of the working-age population did not contribute to public pension programmes in 2010, even though participation is mandatory. As a result, some participants will not be able to receive benefits as they have not completed the minimum ten years of contributions. Under current trends, 40% of the elderly in 2030 would be left without a public pension. *Second*, the lack of transparency about the income of the self-employed and family workers limits their contributions. Consequently, benefits for much of the population will be reduced by short contribution periods and unrealistically low reported incomes. Measures to increase compliance with the NPS and to enhance transparency about income are a priority if the NPS is to bring poverty rates for the elderly into line with the general population.

The NPS should be supplemented by greater private savings for retirement. The mandatory "retirement allowance", which requires firms to pay departing employees a lump-sum of at least one month of wages per year of work, has a number of drawbacks as a pension. In particular, it is not a secure source of income, as it is partially unfunded, it has lost its link to retirement income, and it creates incentives for firms to retire employees early. The government launched a company pension system in 2005 that requires labour and management to agree on a defined-benefit (DB) or a defined-contribution (DC) scheme. As of 2011, pension plans had been introduced at 9% of firms, covering 36% of employees.

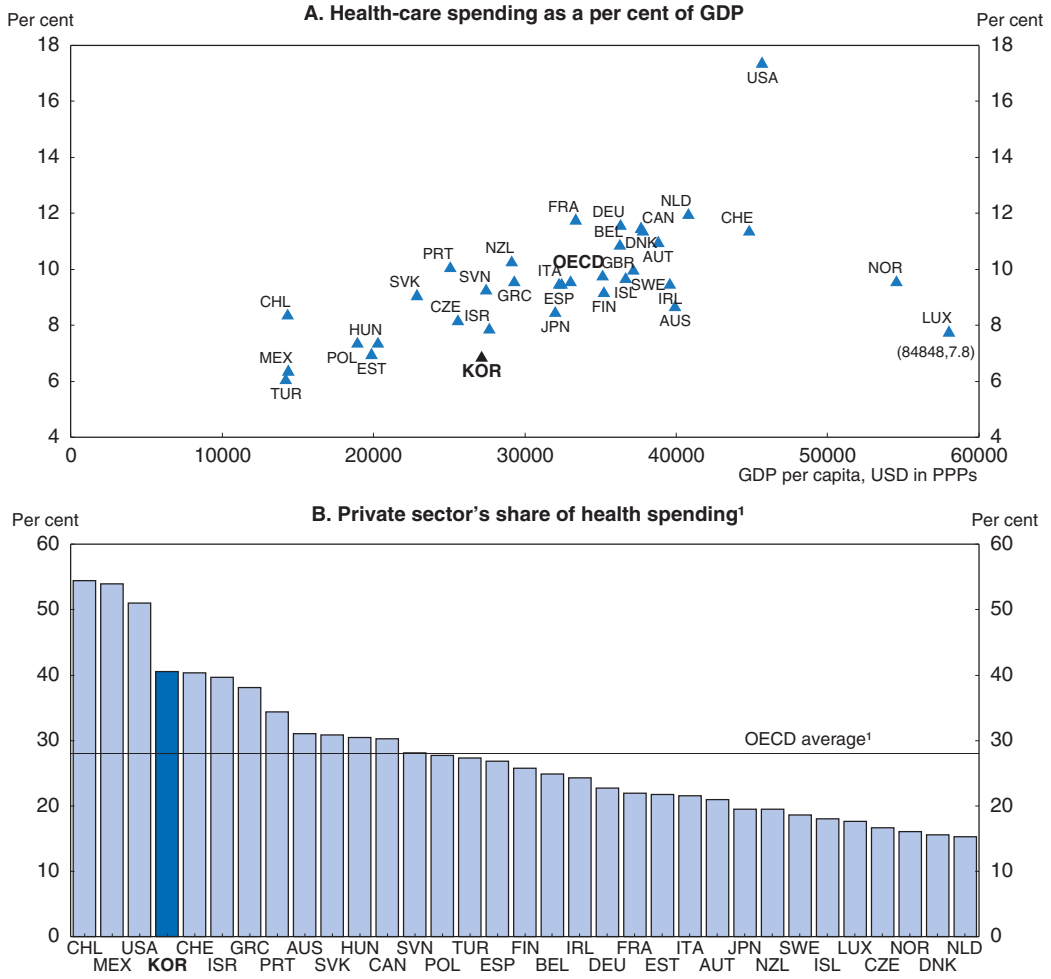
In 2012, the government will introduce additional measures, including allowing firms to adopt both DB and DC schemes and to limit the interim payment of the retirement allowance. To further accelerate the transition to company pensions, the government should remove tax preferences for retirement allowances. In addition, it should encourage the Individual Retirement Pension to promote pension portability.

Health and long-term care

Health spending as a share of GDP in 2008 was almost a third below the OECD average in 2008 (Figure 15), reflecting Korea's relatively young population and government policies, such as capping medical fee increases. In addition, the NHI's coverage of medical treatments has been limited, as it focused initially on achieving universal coverage of the population. Meanwhile, the volume of health care has been restrained by co-payments that are the highest in the OECD area. Consequently, the private sector's share of health

Figure 15. **Health-care spending per capita in Korea is low and the private share is high**

In 2009 or the latest available year



1. Excludes the United Kingdom, for which data are not available.

Source: OECD Health Database 2011.

StatLink http://dx.doi.org/10.1787/888932592413

spending was 41%, the fourth highest in the OECD area (Panel B). High out-of-pocket payments are inequitable and regressive because they do not depend on income, resulting in inequality in the economic burden of illness, boosting poverty and reducing necessary health care (2010 *OECD Economic Survey of Korea*).

Ceilings on co-payments were introduced in 2004 and revised in 2009 to take account of patients' ability to pay. However, for a person earning half of the average disposable per capita income, co-payments could still be as high as one-third of their income. Consequently, the NHI considers that "the current level of protection still falls short of being adequate in terms of risk protection" (NHIC, 2009). It is important to ensure that the ceilings on patient co-payments are low enough to provide adequate access to care for low-income households and those with chronic health problems.

Lowering co-payment ceilings and expanding the NHI's coverage will put further upward pressure on public health spending, which rose from 1½ per cent of GDP in 1990 to 3½ per cent in 2008. Rapid population ageing will intensify spending pressure, given that outlays for a person over the age of 65 in Korea are almost four times higher than for a person under 65. These spending pressures are reinforced by some features of Korea's health-care system (Table 3). *First*, the number of acute-care hospital beds is high relative to the population. *Second*, the average length of patients' stay is nearly double the OECD average. *Third*, the average number of visits to a physician per person has risen from 3.7 per year in 1978 to 13, double the OECD average. *Fourth*, the use of pharmaceutical drugs in Korea is relatively high.

Table 3. **International comparison of health-care services**

In 2009 or latest year available

	Number of hospital beds[1, 2]	Average hospital stay (in days)	Number of physicians[1]	Number of medical graduates[3]	Number of physician consultations per capita per year	Number of consultations per physician per year
Korea	**8.3**	**16.7**	**1.9**	**8.8**	**13.0**	**6 701**
OECD average	5.1	8.7	3.1	9.9	6.5	2 463
Highest country	13.7	33.2	4.7	23.6	13.2	6 701
Lowest country	1.7	3.9	1.9	4.0	1.8	777

1. Per 1 000 population.
2. Hospital beds for acute care.
3. Per 100 000 population.

Source: OECD Health Database 2011.

Korea needs to increase the efficiency of its health-care system to offset the spending pressures:

- Expenditures on pharmaceutical drugs could be reduced by changing the pricing system and allowing the price of generics to fall and be made the standard for reimbursement by the NHI.
- The fee-for-service payment system, which contributes to long hospital stays and frequent consultations with physicians, should be reformed. The Diagnostic-Related Group (DRG) system, which was introduced for hospitals on a voluntary basis in 2002, should be further expanded and made mandatory, as it reduces the length of hospital stays.

- Healthy ageing is essential to limit costs as the population ages. The priority is to raise the cigarette tax – now the lowest among OECD countries – to reduce the high smoking rate of men.

Progress in reforms in health care are summarised in Annex A.2.

Shortening the average stay in hospitals also depends on reducing their role in providing long-term care to the elderly, which creates a mismatch between the needs of the elderly and the medical services provided, thus raising the cost of care. Demographic trends will further expand demand for long-term care, as the share of the population over age 80 is projected to rise from 2% to 14% by 2050. A recent study estimated that total public spending on long-term care in Korea, including outlays by the NHI and Long-Term Care Insurance (LTCI), which was only 0.4% of GDP in 2011, may rise to around 2% by 2050 (Kwon *et al.*, 2011).

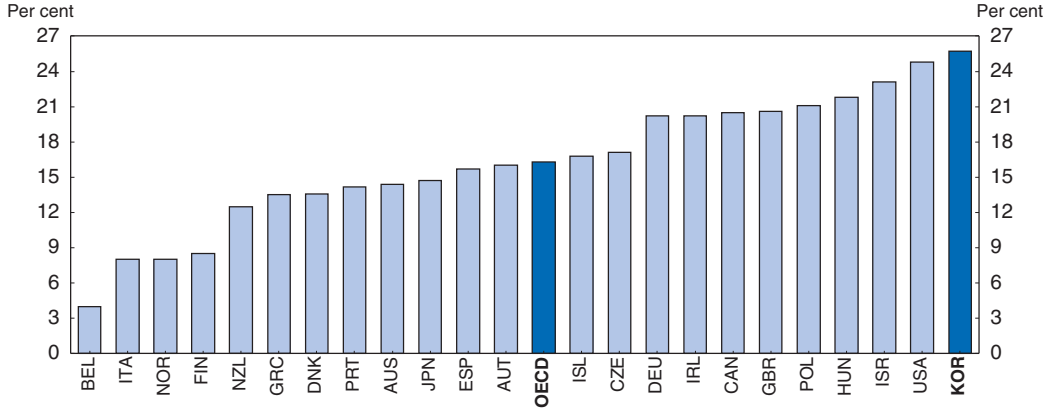
Following the introduction of LTCI in 2008, the share of elderly receiving long-term care in Korea rose sharply from 1.4% to 5.7% in 2011, although it remains well below the OECD average of 13%. There is only one place for every 26 elderly persons. The LTCI should continue to focus on lower-cost home-based professional care rather than institution-based care, while enhancing quality.

Breaking down dualism to reduce wage inequality

Firms hire non-regular workers – those on fixed-term contracts, part-time workers and temporary agency workers – to reduce labour costs and to increase employment flexibility, given the difficulty and cost of laying off regular workers. Indeed, non-regular workers, who account for one-third of employees, earned only 57% as much per hour as regular workers in 2010 (although the gap is narrowed to 13% after adjusting for differences in individual characteristics, such as gender, education, tenure, occupation and age). Consequently, more than a quarter of full-time workers in Korea earn less than two-thirds of the median wage, the highest in the OECD area, thus fuelling inequality (Figure 16). The gap in labour costs is further widened by the weaker coverage of non-regular workers by the social insurance system. In 2010, around 40% of non-regular workers were covered by the NPS, NHI and the Employment Insurance System (EIS). The limited coverage by the EIS

Figure 16. **The incidence of low-paid work**

In 2009 or latest year available[1]



1. The percentage of full-time wage earners that earn less than two-thirds of the median wage of full-time wage earners.

Source: OECD (2011d), *OECD Employment Outlook 2011*.

StatLink http://dx.doi.org/10.1787/888932592432

undermines the effectiveness of the unemployment benefit system, as only about one-third of the unemployed receive benefits. In sum, labour market dualism creates serious equity problems as a significant portion of the labour force works in precarious jobs at relatively low wages and with less protection from social insurance.

The cost of laying off regular workers stems from the high degree of employment protection and the power of trade unions. The legal conditions attached to dismissals for "managerial reasons" – notably that firms must exhaust "all means" to avoid dismissals, discuss proposed dismissals for at least 50 days with workers and notify the government – are highly constraining. Some firms therefore rely instead on more expensive methods to reduce the number of regular employees, such as early retirement packages, and have expanded employment of workers on short-term contracts. OECD studies show that countries with stricter protection for regular workers have a higher incidence of temporary employment (Grubb *et al.*, 2007).

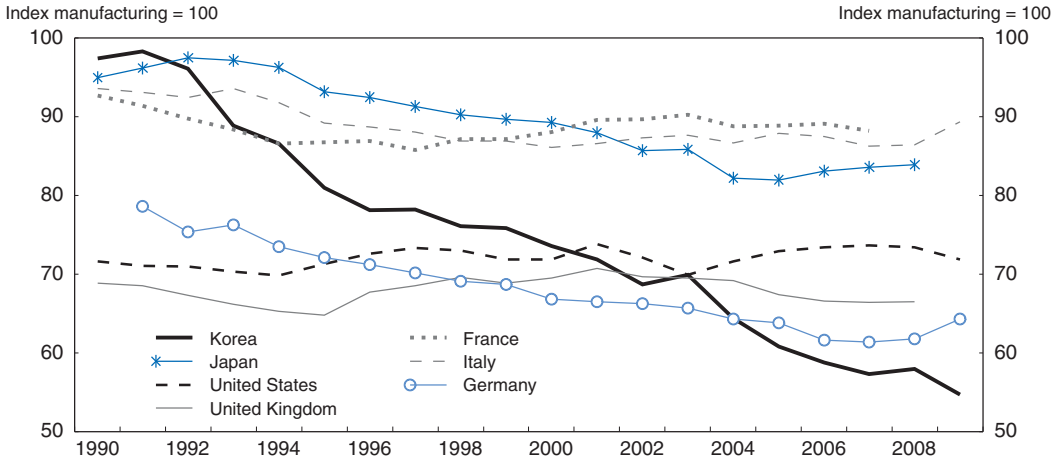
Reducing dualism requires weakening the incentives that encourage firms to hire non-regular workers. One priority is to relax employment protection for regular workers so that firms can achieve their desired flexibility without depending as much on non-regular workers. A second priority is to increase the coverage of non-regular workers by the social safety net, thus reducing the gap in labour costs. Finally, training opportunities for non-regular workers should be expanded to enhance their employment prospects.

Labour market dualism also hinders productivity growth. The largest component of non-regular employment is temporary workers, who account for 25% of total employment, the fourth highest in the OECD area, boosting worker turnover and hence reducing firm-based training. The lack of firm-based training is compounded by low public spending on training, which is one of the lowest in the OECD area.

Raising income in the service sector

Low productivity in the service sector translates into lower wages. Indeed, the ratio of wages in services to those in manufacturing has fallen from nearly 100% in 1991 to only 54% in 2009, a larger gap than in the major OECD countries (Figure 17). Narrowing the

Figure 17. **Wages in the service sector as a share of manufacturing**



Source: OECD STAN Database for Structural Analysis.

StatLink http://dx.doi.org/10.1787/888932592451

productivity and hence the wage gap, through the policies discussed above, would help reduce income inequality. In addition, it is important to slow the inflow of older workers from firms into self-employment in the service sector, which tends to reduce their productivity. Phasing out the right of firms to set mandatory retirement ages would force them to keep workers longer at higher-productivity jobs.

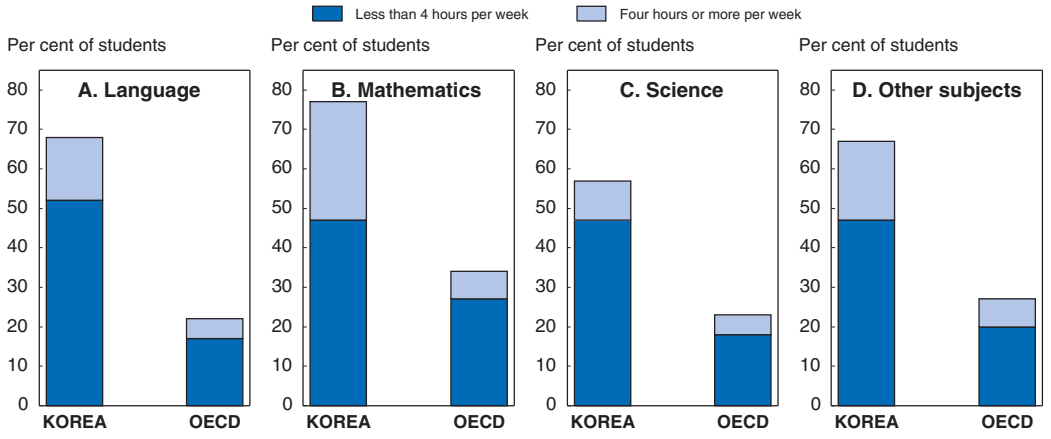
Improving equity through reforms in the education system

Several aspects of education – low investment in pre-primary education, heavy reliance on private tutoring, particularly in *hagwons,* and the high cost of university education – raise equity issues. Pre-primary education reduces social inequality by providing a better start for children from disadvantaged families. In Korea, however, the low level of spending and the large private share (Figure 11) suggests that pre-primary education for children from low-income families is relatively weak. Indeed, children from lower-income households are concentrated in childcare, while those from higher-income households are more likely to enrol in kindergartens or in *hagwons,* which provide more educational opportunities. The OECD PISA assessment found that participation in pre-primary education in Korea had the second-weakest impact among OECD countries on the educational achievement of 15-year-olds.

The proportion of 15-year-olds participating in after-school lessons is more than double the OECD average (Figure 18), in part to help students gain admission to prestigious universities. The severe competition to enter the top universities is driven by academic credentialism – the emphasis on where a person studied rather than on their abilities, accomplishments and potential. However, the reliance on private tutoring places heavy financial burdens on families, reaching 10.7% of average household income per student in 2010. The amount of spending is positively correlated with family income, as is the quality of the university attended, thus perpetuating inequality. In addition, the heavy financial burden is cited by families as a key factor explaining Korea's extremely low birth rate. Private tutoring has a number of other negative impacts. *First*, it competes and overlaps with public education, thus raising total expenditures on education unnecessarily. *Second*,

Figure 18. **The percentage of 15-year-olds attending after-school lessons in Korea is exceptionally high**

By hours per week in 2009



Source: OECD (2010b), *PISA 2009 Results: What Students Know and Can Do, Volume I.*

StatLink http://dx.doi.org/10.1787/888932592470

it forces schools to cope with students of widely differing educational levels. *Third*, it makes for very long days for children, thus hindering their development.

To reduce the role of private tutoring, the government has been trying to improve the quality of schools, expand the diversity in secondary schools and de-emphasise the role of the standardised exam in the university admission process. Such reforms should be continued, while improving vocational education, to provide attractive alternatives to university. Even with such reforms, *hagwons* are likely to continue playing a major role, making it important to improve opportunities for low-cost after-school lessons for low-income students. In particular, further expanding after-school programmes in schools, which enrol 63% of students, would help.

The public sector's share of spending on tertiary education was only 22% in 2008, one-third of the OECD average of 69%. Consequently, tuition fees paid by households are the third highest in the OECD area. At the same time, government scholarships and grants to students (6.0% of public spending on education) and student loans (5.4%) are well below the OECD averages of 11.4% and 8.8%, respectively (OECD, 2011a). Consequently, a student's socioeconomic background is significantly correlated with the quality of the tertiary institution they attend.

Unhappiness with high tuition coalesced around the slogan "half-price tuition", which gained widespread public support. Such a policy, though, would have a number of drawbacks. *First*, universally subsidising tuition fees would encourage even more students to go to university, thereby exacerbating the problems of overemphasis on tertiary education and skill mismatches. *Second*, half-price tuition raises questions of value for money, as it would subsidise low-quality institutions that should instead be restructured or closed. *Third*, subsidising the tuition fees for all students is less efficient and equitable than targeting support on low-income students. *Fourth*, it would be expensive, costing about 0.6% of GDP annually. Experience in other countries suggests caution, as it is very difficult to move away from universal subsidisation of tuition once it is introduced. In 2012, Korea launched a plan to reduce tuition payments through additional grants to students from low-income households and aid to universities that provide more grants. In addition, the government should expand the availability of student loans, with loan repayment contingent on after-graduation income. Such loans were introduced in 2010 but were received by only about 9% of tertiary students, given the eligibility criteria, which should be relaxed.

Conclusion

Korea's strong growth performance over the past decade was accompanied by widening income inequality and high relative poverty, indicating that economic growth is not enough to achieve social cohesion. At the same time, rapid population ageing will slow Korea's growth potential. A wide range of policies discussed above are needed to make Korea more equitable and cohesive, while sustaining growth (Box 3). Moreover, this chapter suggests that:

- The trade-off between economic growth and social spending is not clear cut, as some types of spending may also promote growth. For example, an improved social safety net would facilitate restructuring of the service sector by limiting the associated economic hardship.

Box 3. **Key policy recommendations to promote social cohesion**

- Relax the conditions for receiving benefits under the Basic Livelihood Security Programme and expand the earned income tax credit to reduce poverty, while promoting work incentives.
- Lower the high rate of poverty among the elderly by expanding the Basic Old-Age Pension System and focusing it on low-income persons, improving the National Pension Scheme and promoting private savings for retirement by accelerating the introduction of company pensions.
- Ensure equitable access to health care by reducing out-of-pocket spending by broadening the coverage of the National Health Insurance and reducing co-payment ceilings, while offsetting the cost by improving the efficiency of health care.
- Gradually expand long-term care services by emphasising home-based care to contain cost increases, while enhancing their quality.
- Break down labour market dualism by relaxing employment protection for regular workers, expanding the coverage of non-regular workers by the social safety net and increasing training opportunities for non-regular workers to enhance their employment prospects.
- Raise productivity and wages in the service sector by strengthening competition, while slowing the inflow of older employees into self-employment in services.
- Improve equity through education reforms, notably by increasing the access of disadvantaged children to high-quality ECEC, reducing the role of private tutoring, including *hagwons*, while increasing access to low-cost after-school lessons, and expanding student loans, with repayment contingent on post-graduation income.

- Containing the rise in social spending will support growth. The government should therefore move cautiously and incrementally in developing social welfare programmes that are carefully designed to achieve their intended objectives, while avoiding wasteful spending and negative externalities. In addition, social spending should be targeted at those most in need rather than provided universally. While universal benefits are popular, a means-tested approach ensures the most impact on inequality and relative poverty per won of social spending.
- Shifting from direct government provision of social services in favour of providing transfers to consumers would induce entry by private firms, thereby reducing public investment and spurring competition that better meets the needs of consumers.
- Increased social spending should not be allowed to damage the government's stellar financial position. Social spending should not outpace the willingness of citizens to finance it through higher taxes and/or social security contributions. Moreover, the economic impact of raising government revenue depends on how much and how the revenue is raised.

The following chapters analyse in more detail policies to promote growth (Chapter 1), including through the Green Growth Strategy (Chapter 2), while promoting social cohesion (Chapter 3).

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ANNEX A.1

Economic co-operation with North Korea

Following a 3.1% increase in 2008, North Korea's GDP fell by 0.9% and 0.5%, respectively, in 2009 and 2010. The 2010 decline was partly due to unfavourable weather conditions, which contributed to a 2.1% fall in agricultural production (one-fifth of total output). In addition, the 2009 currency reform, which was aimed at curbing the emerging market economy, appeared to have further subdued economic activity (Haggard and Noland, 2010). By 2010, the South Korean economy was 39.1 times larger than the North's and its per capita income was 20 times higher (Table A1.1). The widening gap will compound the eventual cost of economic integration, which may impose a large burden on the South (Choi *et al.*, 2011).

Table A1.1. **Comparison of North and South Korea in 2010**

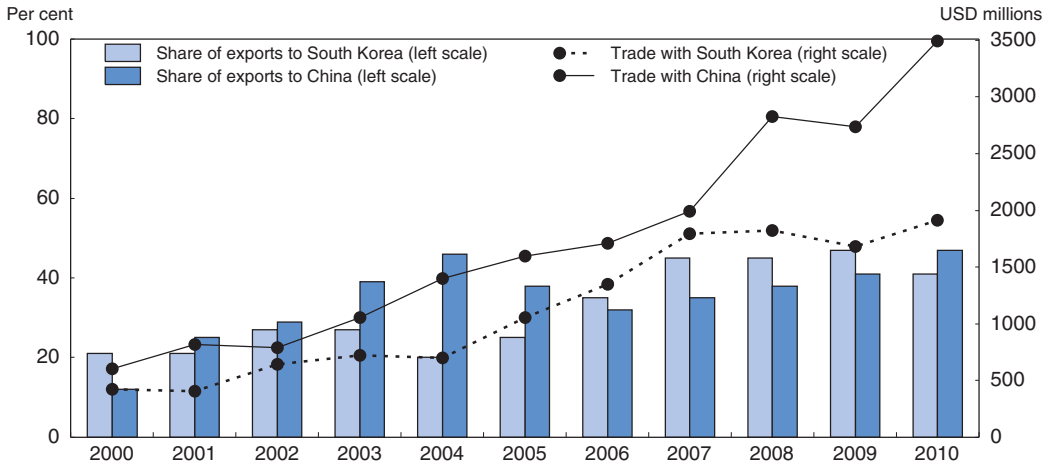
	(A) North Korea	(B) South Korea	Ratio (B/A)
Population (millions)	24.2	48.9	2.0
GNI (trillion won)	30.0	1 173.1	39.1
GNI per capita (million won)	1.2	24.0	20.0
Total trade (billion USD)	6.1	891.6	146.2
Exports	2.6	466.4	179.4
Imports	3.5	425.2	121.5
Of which: inter-Korean exports[1]	1.0	0.9	0.9
Industrial statistics (2009)			
Power generation (billion kWh)	23.5	433.6	18.6
Steel production (million tonnes)	1.3	48.6	37.4
Cement production (million tonnes)	6.1	50.1	8.2
Agricultural production (2009)			
Rice (million tonnes)	1.9	4.9	2.6
Fertiliser (million tonnes)	0.5	2.6	5.2

1. North Korean exports to the South in Column A, and South Korean exports to the North in Column B. The latter includes $23 million of non-commercial exports, primarily humanitarian aid in the form of commodities such as rice and fertiliser. Such aid peaked in 2006 at $421 million.

Source: Statistics Korea and Korea Trade-Investment Promotion Agency.

North Korea's total trade increased by 20% in 2010 to $6.1 billion, only 0.7% of South Korea's international trade. China and South Korea accounted for nearly 90% of the North's trade. After expanding by 2.5 times between 2004 and 2007, inter-Korea trade has stagnated since 2008 (Figure A1.1), primarily for political reasons (see below). Meanwhile, North Korea has become increasingly dependent on China, which supplies two-thirds of its imports.

Figure A1.1. **North Korea's trade with South Korea and China**



Source: Statistics Korea and Ministry of Unification.

StatLink http://dx.doi.org/10.1787/888932592489

China's share of the North's exports (47%) surpassed that of South Korea (41%) in 2010. Consequently, China accounted for 57% of North Korea's total trade in 2010, almost double the share of South Korea. In addition, China and North Korea declared in 2011 that they would develop two new special economic zones; Raseon, on the eastern coast of North Korea, just 20 kilometres from the border with China, and the island of Hwanggumpyong, near Sinuiju, a border city that handles three-quarters of the trade between the two countries.

Inter-Korean exchanges and co-operation have dwindled due to a series of incidents, beginning with the fatal shooting of a South Korean tourist at the Mount Geumgang resort in 2008, which halted the dialogue between the two Koreas. The South suspended the tourism programme to the resort until measures are implemented to prevent future incidents. However, the North froze South Korean private assets at Geumgang and confiscated five South Korean government-run facilities, while threatening to resume the tours with a new business partner. Relations worsened further following the March 2010 sinking of a South Korean warship and the North's shelling of a South Korean island in November. The South's countermeasures included a suspension of inter-Korean trade (excluding Gaesong-related trade) and new investments in the North, limits on South Koreans' contacts with North Koreans, and a suspension of assistance to the North, excluding purely humanitarian aid. The death of the North Korean leader at the end of 2011 increases the uncertainty concerning inter-Korean ties.

Despite the escalating tensions, inter-Korean trade has been sustained by rising production at the Gaesong Industrial Complex, which was established in 2004 as a site for South Korean SMEs. The share of Gaesong-related exports and imports increased from 44% of total inter-Korean trade in 2008 to around 70% in 2010. As of September 2011, the complex contained 123 factories employing about 48 thousand North Korean workers. Production rose by 26% in 2010 to $323 million. The growing importance of Gaesong reflects its success in combining the capital and technology of the South with land and labour in the North. For some SMEs, Gaesong offers a solution to high wages and labour shortages in the South. Infrastructure, including rail and road links, electricity and communications, is provided by the South Korean government and the firms involved.

ANNEX A.2

Progress in structural reforms

This Annex reviews the measures taken in response to the 2010 *OECD Economic Survey of Korea*'s recommendations on financial sector and health-care reform.

A. Taking stock of structural reforms: the financial sector

Recommendations in the 2010 *Survey*	Actions taken or proposed by the authorities
Manage external shocks	
Adjust deposit insurance premia based on foreign borrowing to provide incentives for banks to manage such borrowing more prudently, while effectively implementing revised foreign exchange and liquidity regulations.	The government introduced in August 2011 the Macro Stability Levy to mitigate the volatility of capital flows caused by banks' foreign currency borrowing. The levy is imposed on banks' non-deposit foreign currency liabilities at a rate based on its maturity.
Apply foreign exchange and liquidity regulation to foreign bank branches, by taking into account international regulatory practices and discussions in the G20 and the Financial Stability Board.	The levy is imposed on both domestic banks and foreign bank branches.
Participate in multilateral currency swap arrangements to reduce vulnerability to sudden capital outflows.	The currency swap arrangements with China and Japan have been expanded preemptively to prepare for the potential financial turmoil related to a worsening of the European fiscal crisis.
Strengthen financial intermediaries and corporate restructuring	
Limit the moral hazard problems in policies to help highly-indebted households.	The government excluded those who have an excessive amount of debt, or who have ever been accused of illegally stashing or siphoning off personal assets, in determining eligibility for its programme to help indebted households.
Avoid using lending to SMEs as a condition for banks to receive assistance, such as for public capital injections and guarantees.	Currently, there is no demand from banks for resources from the public recapitalisation fund for banks.
Phase out the expanded SME support programmes, including public spending and guarantees, which were introduced during the recent crisis, and promote corporate restructuring based on market incentives.	The public credit guarantee funds have normalised their support for SMEs to pre-crisis levels, including the guarantee limit. The fast-track programme was improved to limit financial support only to firms with growth potential.
Use the LTV and DTI regulations effectively to limit the risk of mortgage lending to financial intermediaries, while not using them to target housing prices in certain areas.	The LTV and DTI have limited the risk of mortgage lending.
Avoid frequent changes in the LTV and DTI, which could foster instability.	No action taken.
Phase out other controls on housing, while putting more emphasis on enhancing supply.	The government is easing regulations imposed when the housing market was overheated, including reducing the number of "heavily regulated zones" and easing regulations to provide enough housing to stabilise the housing market.
Reform weak financial intermediaries, notably the mutual savings banks (MSBs), to improve resource allocation.	The government closed 16 non-viable MSBs, accounting for about 30% of total assets in this sector, in 2011; it is requiring the remaining MSBs to strengthen their capital base.

A. Taking stock of structural reforms: the financial sector	
Recommendations in the 2010 *Survey*	**Actions taken or proposed by the authorities**
Upgrade the corporate governance of financial institutions in line with the principles recommended by the Basel Committee on Banking Supervision and the OECD.	In 2010, the government issued best practice guidelines based on BCBS and OECD recommendations and is now pushing new legislation related to the governance of financial institutions.
Reduce the reliance on credit rating agencies in the financial regulatory system to make financial institutions and investors more responsible for their products, decisions and behaviour.	The Korean authorities are investigating whether the credit ratings are being made in timely and appropriate manner.
Promote the development of securitisation through enhanced transparency to reduce pressure on banks' balance sheet due to the shortage of deposits, while ensuring that it does not create new vulnerabilities.	No action taken.
Avoid the emergence of too-big-to-fail financial institutions.	The FSB imposed regulations on "Global Systemically Important Financial Institutions" (SIFIs) and is discussing whether to extend the regulation to "Domestic SIFIs".

B. Taking stock of structural reforms: the health-care system	
Recommendations in the 2010 *Survey*	**Actions taken or proposed by the authorities**
Contain the growth of health spending by increasing efficiency	
Expand the use of the DRG system in hospitals and regularly adjust the reimbursement rate to the level in more efficient hospitals, while ensuring adequate quality.	The use of DRG will be expanded by applying it to seven disease groups in phases in all clinics and hospitals from July 2012 and in all general hospitals from July 2013. The government will consult with medical experts in setting the fees and quality standards.
Reform fee-for-service billing in out-patient care by introducing some form of capitation to reduce the number of physician consultations.	No action taken.
Cut outlays on drugs by reducing the use of rebates by pharmaceutical companies, basing reimbursement on market prices, cutting the price of generics and expanding their use and gradually removing regulations on the sale of non-prescription drugs.	The incentive system for out-patient prescriptions, which rewards physicians who reduce drug prescriptions, was extended to hospitals and a new pricing system that reduces the price of original drugs and generics was also introduced in January 2012. In addition, a government-wide task force was established in 2011 to crack down on illegal rebates on drugs.
Shift long-term care from acute-care hospitals to home-based care and long-term care facilities to reduce costs and emphasise home-based care in long-term care insurance.	The scope for home-based care was expanded in 2011 by lifting the ban on patients receiving both long-term care and visits by nurses at home.
Encourage healthy ageing, in part by lifting tobacco taxes from their low levels to reduce the smoking rate.	The government has introduced non-price measures, such as designating all public facilities as non-smoking areas and reducing cigarette advertising, to discourage smoking.
Introduce gatekeepers to avoid unnecessary consultations with specialists and promote primary medicine.	The government will introduce neighbourhood clinics in April 2012 to provide treatment for those suffering from chronic diseases.
Financing health spending efficiently	
Consider shifting toward tax-financing, particularly via indirect taxes, in conjunction with effective measures to keep spending in check, in order to limit the upward trend in the tax burden on workers, thereby encouraging employment.	No action taken.
Attempt to boost the compliance of the self-employed with insurance payments to improve horizontal equity.	The collection of social insurance payments was combined in the NHI in 2011.
Ensure adequate access to health care	
Continue the upward trend in the public sector's share of health spending, thereby reducing the burden of out-of-pocket payments.	The coverage of the NHI and its benefits continue to increase gradually; in 2012, the payment for pregnancy and childbirth increased from 400 thousand won to 500 thousand (around $450).
Ensure that the ceilings on patient co-payment are low enough to provide adequate access for low-income households and those with chronic health problems.	From April 2012, the co-payment rate for patients with hypertension or diabetes will be lowered from 30% to 20%.
Promote the availability of health care in rural areas, using public health-care centres if necessary.	The government is maintaining subsidies to improve health facilities and equipment in rural areas.
Improve the system of setting medical fees to reduce shortages in certain medical specialties.	The government has launched a study of the fee-setting system.

B. Taking stock of structural reforms: the health-care system	
Recommendations in the 2010 *Survey*	**Actions taken or proposed by the authorities**
Improve the quality of health care	
Link insurance reimbursements by the NHI to the quality of health care based on carefully chosen performance indicators.	The treatments included in the assessment of the quality of care expanded to 38% of total treatment expenses in 2012. The government is running a pilot project that adjusts reimbursement payments according to the appropriateness of care.
Increase the availability of information on the performance of health providers to consumers to promote competition and improve the behaviour of health providers.	The government plans to provide information on hospital accreditation and add quality of care to accreditation standards.
Upgrade the hospital sector by allowing investor-owned hospitals and mergers and acquisitions, while addressing any possible side effects.	The government plans to revise a law to allow investor-owned hospitals in Free Economic Zones, while enabling M&As between medical corporations.
Consider increasing the number of physicians from its current low level.	No action taken.

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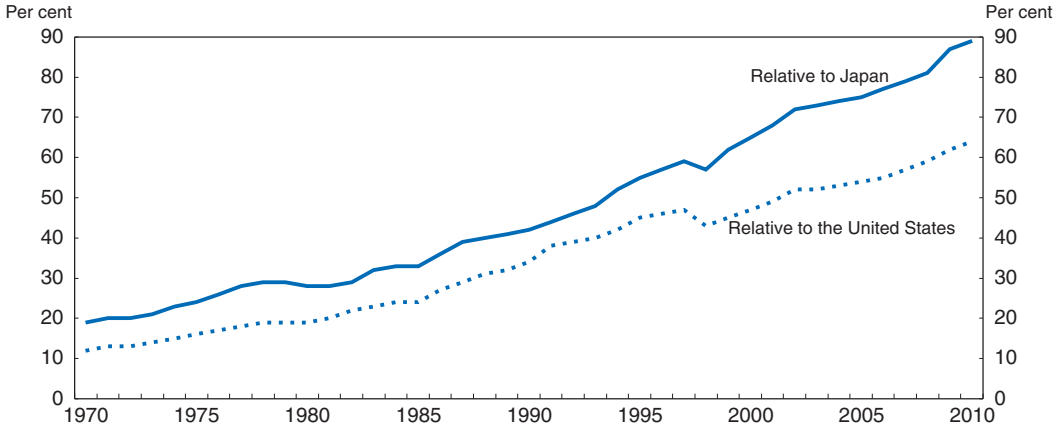
Chapter 1

Sustaining Korea's convergence to the highest-income countries

While Korea remains one of the fastest-growing OECD economies, its potential growth rate per capita is projected to decelerate from around 4% during the current decade to around 2¼ per cent during the 2030s. Sustaining output growth requires policies to mitigate the impact of rapid population ageing by increasing labour inputs from under-utilised segments of the population. In particular, female labour participation should be encouraged by better work-life balance and increasing the availability of high-quality, affordable childcare, in part by raising tuition fee subsidies and improving the quality of private childcare centres. More flexible employment and wage systems would increase the age at which older workers leave firms. For young people, improved vocational education at the secondary and tertiary levels would help overcome the labour mismatch problem and the overemphasis on tertiary education. Enhancing educational quality at all levels would promote productivity gains, including in services. Strengthened competition is also a key to narrow the large productivity gap between services and manufacturing.

The economic development of Korea since 1960 has been among the most rapid ever achieved, boosting per capita income from 12% of the US level in 1970 to 63% in 2010 (Figure 1.1). As Korea has converged towards the high-income countries, its potential per capita growth rate has slowed from around 7% in 1995 to close to 4% at present. It is projected to fall further in the context of rapid population ageing, as Korea has experienced one of the sharpest falls in fertility rates in the OECD area and a remarkable gain in longevity. Consequently, Korea, currently the third-youngest country in the OECD area, will have the second-highest elderly dependency ratio by mid-century (Figure 1.2). The ratio of the working-age population to the elderly will thus fall from 6.0 in 2010 to 1.3 in 2050, implying that public social spending will pose a heavy burden on a shrinking labour force. Similarly, the total dependency ratio – the number of persons under 20 and over 65 as a share of the working-age population – will double from 52% in 2010 to 105% in 2050, the third highest in the OECD area. Sustaining economic growth is essential to allow continued improvements in living standards.

Figure 1.1. **Korea's per capita income is converging to the most advanced countries**[1]



1. Using 2005 purchasing power parity exchange rates.
Source: OECD (2012), *Going for Growth 2012*.

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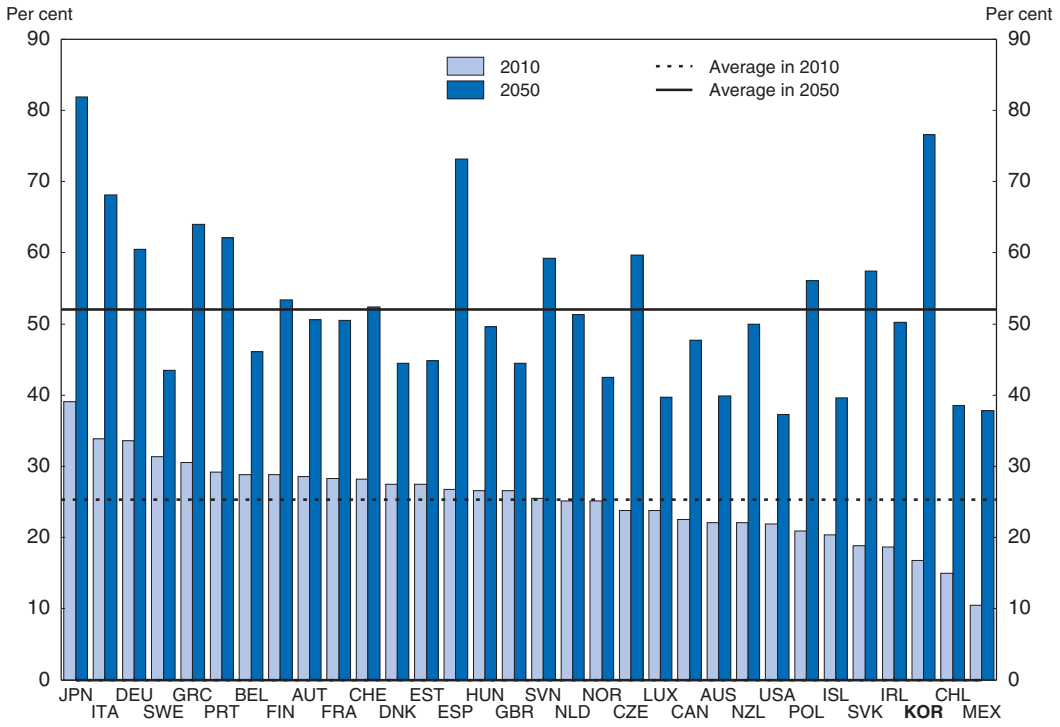
Korea's growth performance depends on measures to mitigate the fall in labour inputs due to demographic trends and to increase productivity. After an overview of Korea's long-term growth prospects, the following sections discuss labour market and tax policies to promote labour force participation. The chapter then analyses education reforms that would support productivity growth, before discussing the service sector, where the potential for productivity gains is large. Policy recommendations are summarised in Box 1.2 at the end of the chapter. While economic growth is a priority, it is essential to

Figure 1.2. **Population ageing in Korea will be the fastest in the OECD area**[1]



1. The elderly dependency ratio shown in this figure is defined as the over-65 population as a share of the 20-to-64 population.

Source: Statistics Korea, *Population Projection for Korea* (2011 version) and *OECD Demography and Population Database*.

StatLink http://dx.doi.org/10.1787/888932592527

ensure that it is environmentally sustainable by promoting green growth (Chapter 2) and inclusive so as to reduce income inequality and poverty (Chapter 3).

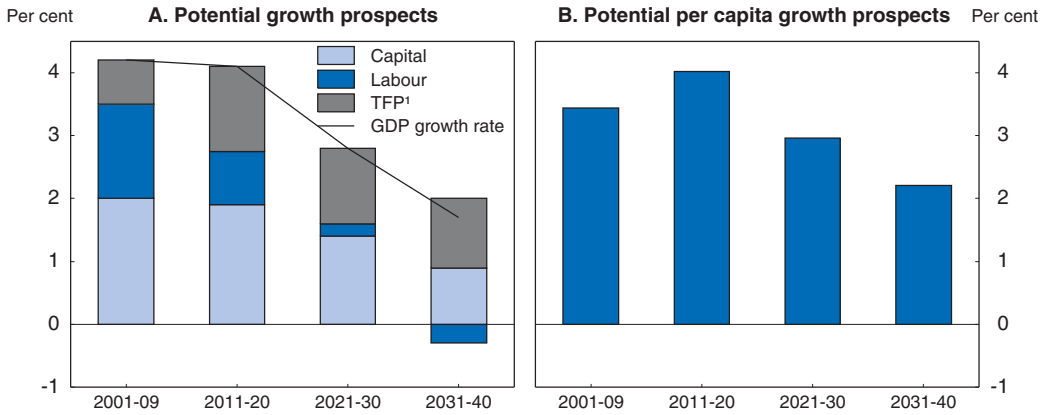
Korea's long-run growth potential

The fall in Korea's potential growth since 1995 reflects a deceleration of both productivity and labour inputs. *First*, the contribution from trend labour productivity has fallen from about five percentage points to three as Korea moved closer to the technology frontier. *Second*, the contribution from labour inputs has declined from two percentage points to one, as working-age population growth halved (from 1.4% to 0.7%). Looking ahead, the Korea Development Institute estimates that Korea's potential growth rate will fall to 1.7% during the 2030s, as the contribution from labour inputs turns negative (Figure 1.3). In per capita income terms, the fall in potential will be more gradual – from 4.0% during the current decade to 2.2% in the 2030s – given the decline in population.

Korea's rapid growth has boosted its per capita income to within 30% of the top half of the 34 OECD countries (Figure 1.4). The gap can be divided into labour inputs (the middle column) and labour productivity (the right-hand column). Labour inputs, relative to population, are by far the largest in the OECD area, reflecting long working hours that are 25% above the OECD average. The gap is likely to narrow quickly as the working-age population begins falling from 2017 and as working hours, which have been declining at a 1.5% annual rate since 2000, continue to drop. Measures to mitigate falling labour inputs are therefore important to sustain Korea's convergence to the highest-income countries. At

Figure 1.3. **Korea's potential growth prospects**

Annual average percentage rate

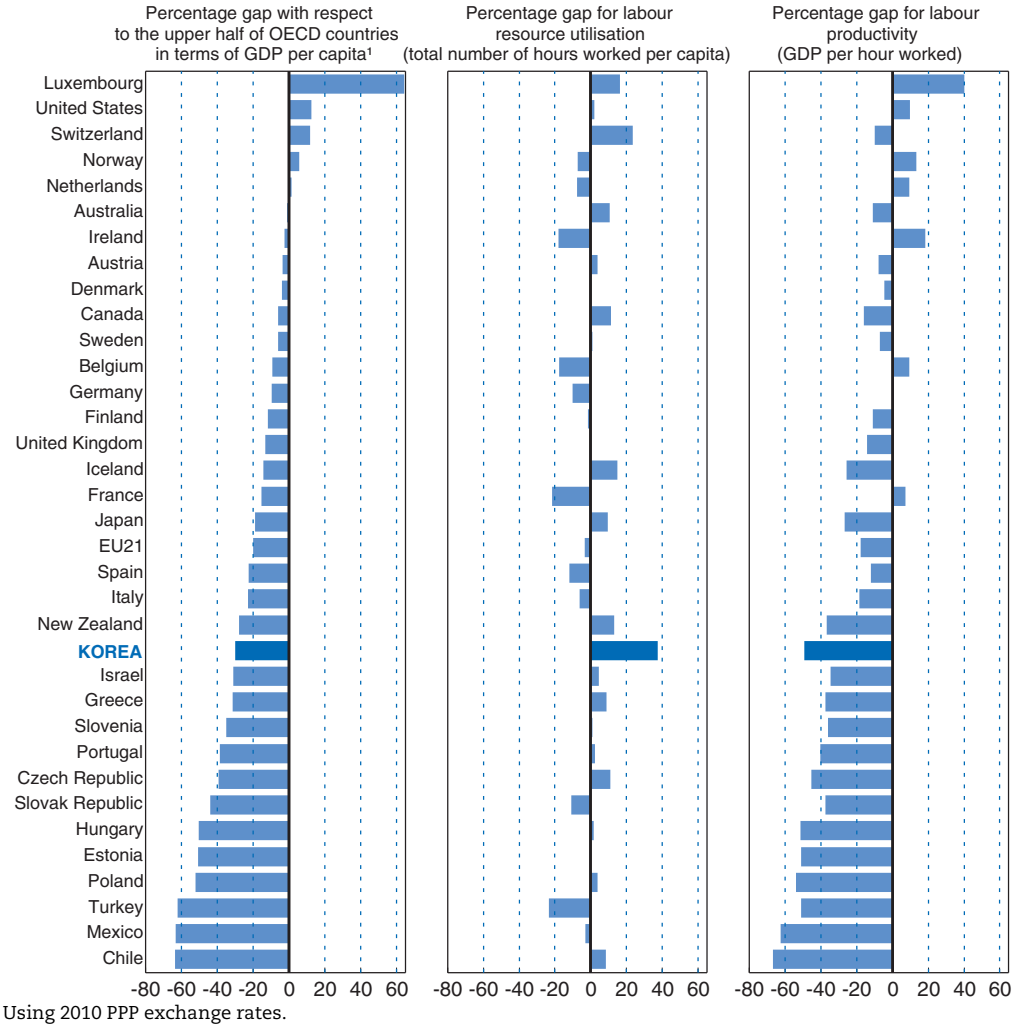


1. Total factor productivity.

Source: Korea Development Institute.

StatLink http://dx.doi.org/10.1787/888932592546

Figure 1.4. **Explaining differences in income in 2010**



1. Using 2010 PPP exchange rates.

Source: OECD (2012), *Going for Growth 2012*.

StatLink http://dx.doi.org/10.1787/888932592565

the same time, there is significant scope for productivity gains, as Korea's labour productivity per hour of work is only about half of that in the top half of the OECD countries. The issues of labour force participation and productivity growth are both linked to labour market dualism (Box 1.1).

Box 1.1. **Labour market dualism in Korea**

Non-regular workers – a category that includes temporary (*i.e.* those with fixed-term contracts), part-time and atypical workers, such as temporary agency workers – account for one-third of employees (Table 1.1). The largest component of non-regular employment is temporary workers at almost one-half of non-regular workers. Firms hire non-regular workers to reduce labour costs and to increase employment flexibility, given the difficulty and cost of laying off regular workers.

Table 1.1. **Employed persons by status**

Year	Wage workers	Non-regular workers		*of which*[1]					
				Temporary workers			Part-time workers	Atypical workers	
				With fixed-term contract	With open-ended contract, expect job to continue[2]	With open-ended contract, but could be dismissed[3]		Dispatched	Others
	Thousand	Thousand	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
2003	14 149	4 606	32.6	52.2	5.4	7.9	20.2	2.1	34.3
2005	14 968	5 483	36.6	49.8	5.5	10.7	19.0	2.1	32.6
2007	15 882	5 703	35.9	44.4	9.7	8.1	21.1	3.1	35.7
2009	16 479	5 754	34.9	48.9	3.0	9.1	24.8	2.9	36.8
2011	17 510	5 995	34.2	44.5	5.7	7.3	28.4	3.3	37.2

1. The sum of the categories of non-regular workers exceeds 100% due to double-counting.
2. Workers' whose term is not fixed and can be renewed regularly.
3. An employee could be dismissed, for example, due to seasonal factors, completion of a project or the return of an employee that they were replacing.

Source: Statistics Korea, *Survey on Economically Active Population*.

A 2011 government labour survey shows that non-regular workers are disproportionately older, female, less educated, engaged in elementary work and employed in small and medium-sized enterprises (SMEs) (Table 1.2):

- The proportion of non-regular workers is highest among older workers. In 2011, the over-60 age group accounted for only 7.8% of employees but 16% of non-regular workers (Panel A). In contrast, only 3.5% of regular workers were over 60.
- Female employees accounted for over half of non-regular workers, but only 37.1% of regular workers (Panel B).
- Non-regular workers tend to be less educated, as a quarter attained only middle school or less compared to 9.7% for regular workers (Panel C). In contrast, most workers with tertiary degrees are regular workers, thus helping to fuel demand for university education.
- Almost one-half of non-regular workers were engaged in assembly and elementary work, compared to less than one-third of regular workers (Panel D). In contrast, only 18.1% were in management.

Box 1.1. **Labour market dualism in Korea** *(cont.)*

- There is significant variation between sectors. The share of non-regular workers is especially large in wholesale and retail trade and construction (Panel E).
- Non-regular workers are concentrated in firms with less than 300 employees (Panel F).
- Non-regular workers have shorter tenure, averaging around two years, compared to more than six years for regular workers (Panel G).
- Non-regular workers receive significantly less coverage by the social insurance system. Less than half of non-regular workers are covered by employees' pension and health insurance and employment insurance, compared to around four-fifths for regular workers (Panel H).

Table 1.2. **A comparison of regular and non-regular workers**

In per cent in August 2011

A. Age	Under age 30	30 to 59	Over age 60	
All employees	20.9	71.4	7.8	
Regular workers	20.9	75.6	3.5	
Non-regular workers	20.7	63.3	16.0	
B. Gender	Male	Female		
All employees	57.3	42.7		
Regular workers	62.9	37.1		
Non-regular workers	46.6	53.4		
C. Education	Middle school or less	High school	Tertiary	
All employees	15.2	39.0	45.8	
Regular workers	9.7	36.8	53.5	
Non-regular workers	25.9	43.1	31.0	
D. Occupation[1]	Assembly and elementary workers	Administrators and managers	Clerks	Other
All employees	36.6	24.2	21.5	17.7
Regular workers	30.9	27.4	26.8	14.9
Non-regular workers	47.5	18.1	11.3	23.0
E. Sector	Manufacturing	Wholesale and retrial trade	Construction	Other
All employees	19.7	18.2	8.0	54.1
Regular workers	25.3	18.3	5.9	50.5
Non-regular workers	9.0	18.1	12.0	60.9
F. By size of establishment[2]	More than 300	30 to 299	Less than 30	
All employees	11.2	29.9	58.8	
Regular workers	14.1	32.7	53.1	
Non-regular workers	5.6	24.6	69.8	
G. Tenure	Average tenure			
Regular workers	6 years and 7 months			
Non-regular workers	2 years and 2 months			
H. Coverage by social insurance	Employees' pension scheme	Employees' health insurance	Employment insurance	
Regular workers	79.1	80.9	77.4	
Non-regular workers	38.2	44.1	42.3	

1. For the top three occupations for regular workers. The administrators and managers category includes engineers.
2. Number of employees.

Source: Statistics Korea, *Survey on Economically Active Population*.

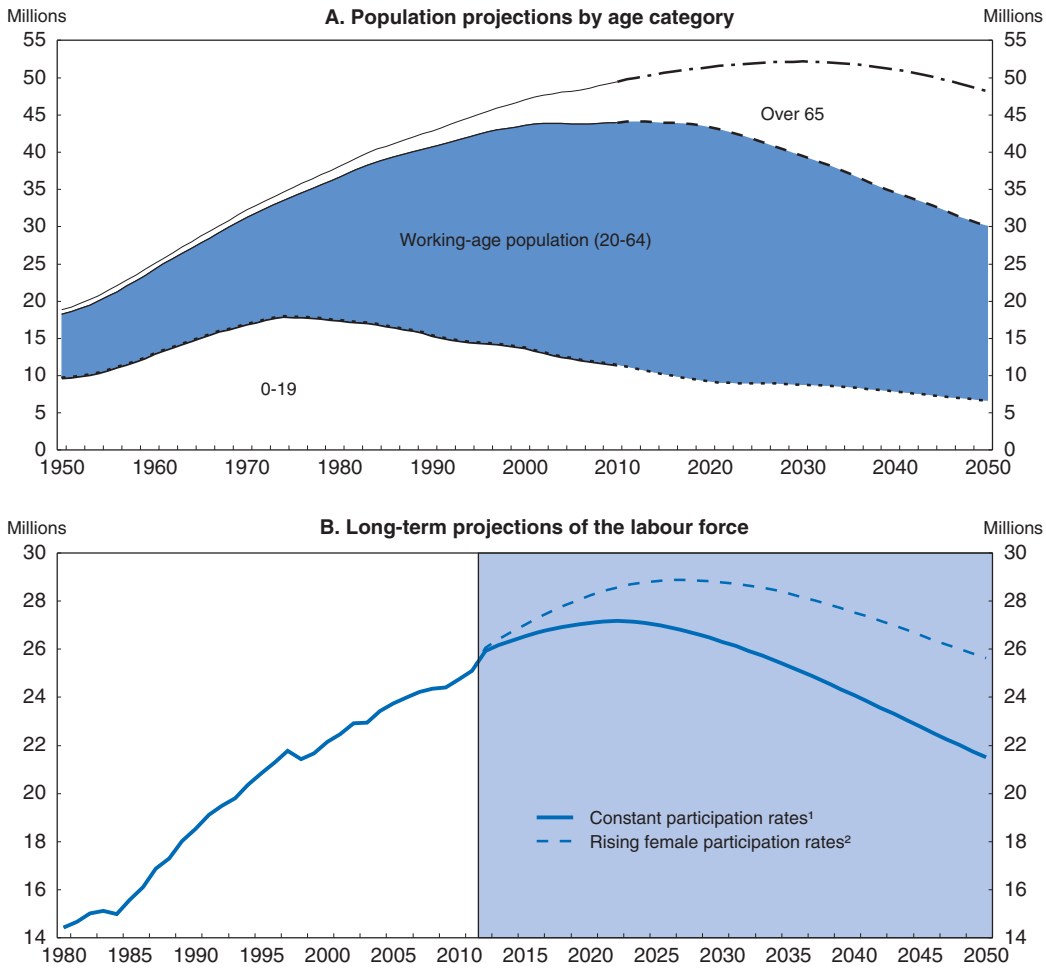
Box 1.1. **Labour market dualism in Korea** *(cont.)*

Non-regular workers earned only 57% as much per hour as regular workers in 2010 (although the gap is narrowed to 13% after adjusting for differences in individual characteristics, such as gender, education, tenure, occupation and age). Consequently, more than a quarter of full-time workers in Korea earn less than two-thirds of the median wage, the highest proportion in the OECD area, with negative implications for equity. Moreover, non-regular workers receive less coverage by the social insurance system. The negative consequences of dualism are exacerbated by the lack of mobility between non-regular and regular employment. The forces driving dualism, as well as policies to reverse it, are analysed in Chapter 3.

Labour market reforms to boost employment and productivity

The population is expected to peak at about 52 million around 2030 and then drop by 8% by mid-century (Figure 1.5). The working-age population, meanwhile, will peak already

Figure 1.5. **Rapid population ageing in Korea and the decline of the labour force**



1. The participation rates for men and women are assumed to remain at their current levels for each age group.
2. Female participation rates are assumed to reach current male rates in each age group by 2050.

Source: Statistics Korea, *Population Projection for Korea* (2011 version) and *Economically Active Population Survey* and OECD calculations.

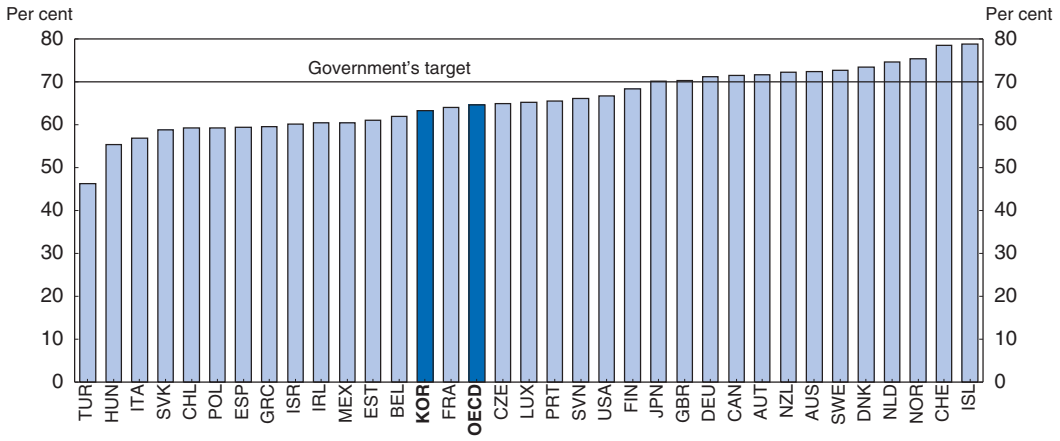
StatLink http://dx.doi.org/10.1787/888932592584

in 2016 and then fall by more than one quarter by 2050. The retirement of the generation born between 1955 and 1974 – 16.5 million persons (34% of the total population) – is beginning in earnest and will have a profound impact. It is essential to boost labour force participation, particularly among women, who tend to withdraw from the labour force for marriage or childbirth, the elderly, who retire at a relatively young age from firms, and youth, who face serious mismatch problems. One option to ease the demographic burden would be immigration, although inflows have been closely restricted thus far. Indeed, the government reported that there were 0.7 million foreign workers in Korea in 2011, accounting for less than 3% of the labour force, well below the OECD average of 10% (OECD, 2007c).[1]

The government's 2010 "National Employment Strategy 2020" aims at making greater use of "vulnerable workers", such as women, the elderly and youth, to boost the employment rate from 63% of the working-age population in 2010 to the 70% level of some advanced countries (Figure 1.6). The other pillars of the strategy are to: *i)* pursue employment-friendly economic and industrial policies, including the Green Growth Strategy (Chapter 2); *ii)* create a fair workplace to improve income distribution and welfare, in part by reforming regulations governing non-regular workers (Chapter 3); and *iii)* reform the social safety net to strengthen work incentives (Ministry of Employment and Labour, 2010).

Figure 1.6. **International comparison of employment rates**

As a per cent of the working-age population in 2010



Source: OECD (2011d), *OECD Employment Outlook 2011*.

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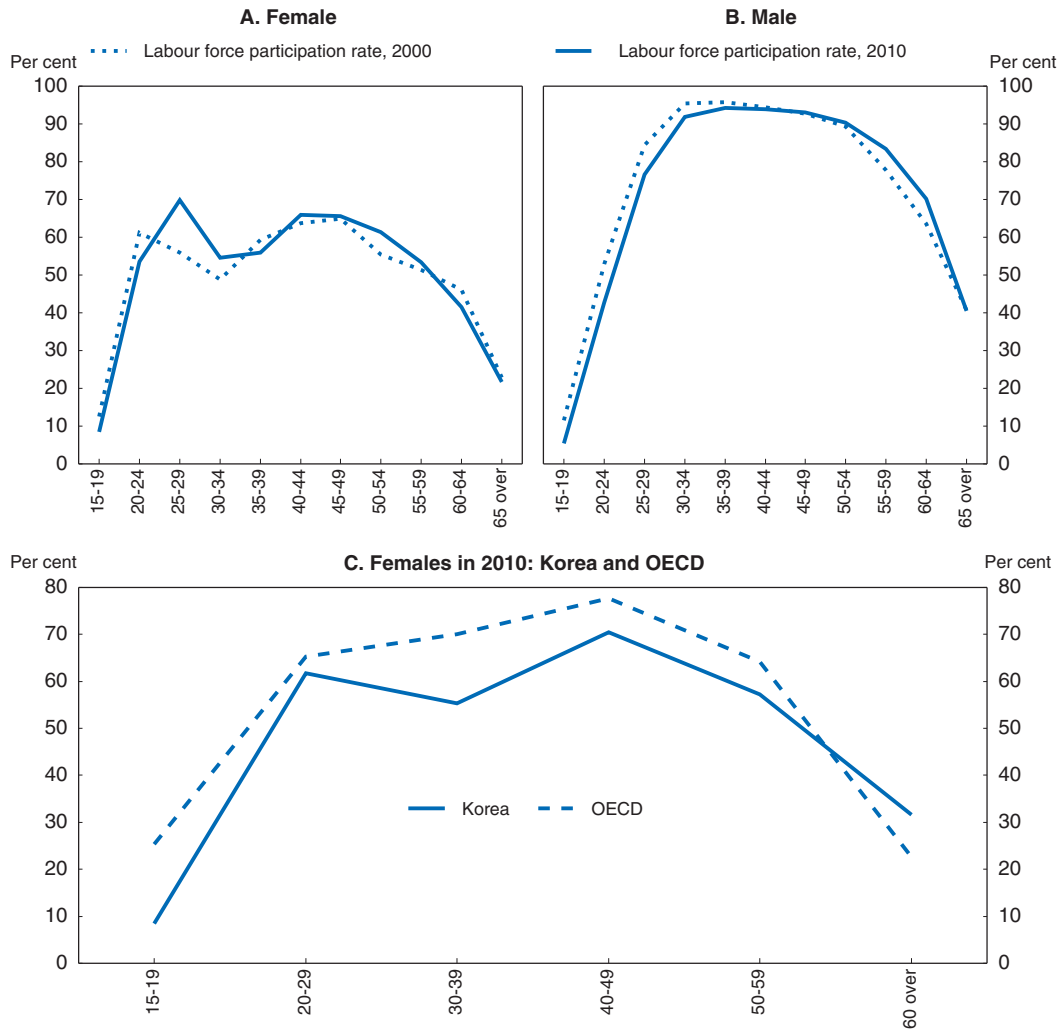
Boosting female labour force participation

If participation rates were to remain at their current levels for each age group by gender, the labour force would peak at 27.2 million in 2022 and then fall by 21%, to around 21.5 million (Figure 1.5, Panel B) by 2050. However, if the female participation rate were to converge to the current level for males for each age group by 2050, the labour force would only decline to around 25.6 million, 19% higher than in the case of unchanged participation rates.

Women's participation rate was 54.5% for the working-age population in 2010, compared to an OECD average of 61.8% and more than 70% in some advanced countries. The government has set a target of boosting the rate to 60% by 2014. Although the participation rate of prime-age women (the 25-to-54-age group) increased from 54% in 1990

to 62% in 2010, it was still the third lowest in the OECD area. The low rate reflects the withdrawal of a majority of women at the time of marriage or childbirth, although most return later, resulting in an M-shaped pattern not found for Korean men or for women in the OECD area as a whole (Figure 1.7). The withdrawal of women is due to the challenge of combining employment with caring for a family. According to a 2010 government survey, 53% of women responded that "family responsibilities" were the primary obstacle to employment, followed by their children's schooling (19%) and childcare (14%). The tradition of long working hours in Korea (see below) makes it difficult for both parents to work as regular workers. Consequently, 57% of married women are not in the labour force and instead bear most of the family responsibilities.

Figure 1.7. **Changes in labour force participation by age and gender**



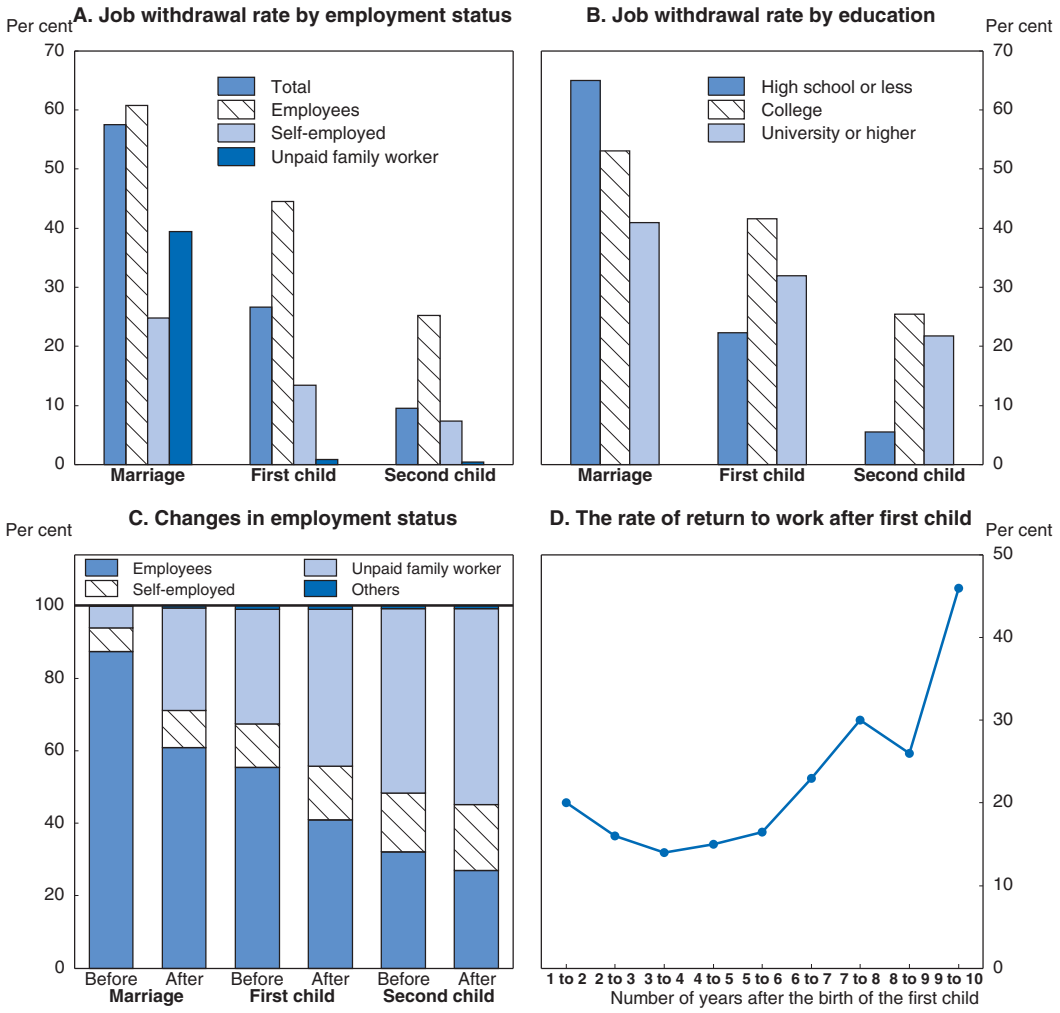
Source: OECD Employment Outlook Database.

StatLink http://dx.doi.org/10.1787/888932592622

Another study (Figure 1.8) found that:

- In 2007, 58% of female workers withdrew from the labour force when they marry, with the figure much higher for employees than for the self-employed or family workers.

Figure 1.8. **Responses of female workers to marriage and childbirth**[1]



1. The 2007 survey samples for marriage, birth of a first child and a second child are not necessarily identical.
Source: Kim (2011).

StatLink http://dx.doi.org/10.1787/888932592641

Another 27% leave at the time of the birth of their first child and 10% when a second child is born (Panel A).

- Women with higher educational attainment were less likely to withdraw following marriage than those with a lower educational attainment, reflecting their higher opportunity cost of not working. However, they are more likely to withdraw following the birth of a child (Panel B).
- A large share of women who were employees prior to interrupting their careers for marriage and childbirth return to the labour force as self-employed and unpaid family workers. Indeed, the share of women working as employees fell significantly from 87% prior to marriage to 27% after their second child (Panel C). Moreover, many of those who are employees work as lower-paid non-regular workers.
- The share of women who returned to work after their first child falls for the first four years, perhaps due in part to the birth of an additional child. The rate of return to the

labour force gradually rises as children enter school and reaches 46% after nine years (Panel D).

Realising the 60% target for female participation among the working-age population by 2014 will require a number of reforms, although it is difficult for the government to change business practices and social customs. Nevertheless, it has taken steps to alleviate the burden of bearing and caring for children and to create more family-friendly workplaces, based on the recommendations by the Korean Committee on Low Fertility and Population Ageing Policy in 2006:

i) Expand investment in public childcare, while introducing a subsidy for private facilities;

ii) Encourage flexible working schedules, including shorter hours for parents with childcare responsibilities;

iii) Lengthen maternity leave to 90 days for women employed at SMEs, with the cost covered by the Employment Insurance System (EIS);

iv) Raise the childcare leave benefit and easing the conditions attached to it.[2]

These measures were followed by the 2011 revision of the Equal Employment Opportunity and Work-Family Balance Assistance law, which allows parents with children under age six to request shorter working hours.[3] The government also encouraged more fixed-term and "dispatched workers" (workers from temporary worker agencies) to take childcare leave by excluding the leave time from the legal time limits on their length of employment. Better work-life balance would also benefit firms by reducing the turnover of skilled workers, leading to higher productivity (Kim and Hwang, 2009).

The take-up rate for maternity leave is now estimated at 63% for regular employees and 37% for non-regular workers. By 2010, the number of women taking maternity leave had increased to around 75 000. However, the average length was 13 weeks in 2008, below the OECD average of 19 weeks. Further extending the length of maternity leave beyond 90 days and expanding the coverage of the EIS, which plays a major role in financing it, would encourage female workers to remain in the labour force at the time of childbirth. One study found that around five months is the optimal length from a labour supply perspective (Jaumotte, 2003). Longer maternity leave should be accompanied by longer parental leave, which averages 46 weeks, well below the OECD average of 72 weeks. Moreover, the full-time paid equivalent is ten weeks, only half of the OECD average, suggesting a need to make the benefit more generous. The number of fathers taking childcare leave surpassed 1 000 in 2011 for the first time, but still accounts for only 2% of parents taking the leave. The limited take-up reflects fathers' concern that it would have negative effects on their career and relationships with colleagues (OECD, 2011b). Reserving a part of the parental leave for the exclusive use of fathers would increase their take-up of parental leave.

In addition to maternity and parental leave, reducing working hours is a priority to improve work-life balance. The tradition of long working hours stems in part from heavy use of overtime, encouraged by a large overtime premium and low marginal income tax rates, and unused annual leave. Compared to other countries, Korean workers tend to favour working longer hours and earning more (Choi *et al.*, 2012). As for firms, they prefer to meet increased demand through longer hours rather than by expanding the number of employees, given the fixed costs of hiring and the employment protection that makes it expensive to dismiss unnecessary workers (Kim and Hwang, 2009). In 2007, 87% of men

(the fifth highest in the OECD area) and 77% of women (the seventh highest) worked more than 40 hours per week (OECD, 2011a). The emphasis should shift from long working hours to productivity, which would also help expand domestic demand. Following the gradual introduction of the 40-hour work, beginning with companies with more than 1 000 workers in 2004, average annual working hours fell by 8% to 2 193 in 2010. The decline in working hours for the self-employed, who are not subject to limits on hours, followed a similar pattern, suggesting that shorter hours reflect social preferences.

Nevertheless, annual working time remains the longest in the OECD area at 25% above the average of 1 749 hours in 2010. The government goal to cut working time to 1 800 hours would require a number of measures. *First*, strictly enforcing the 40-hour workweek, as well as the 12-hour limit on weekly overtime, would reduce working time. In 2011, 15% of employees worked more than 53 hours per week, thus violating the labour code. Long working hours are more prevalent at smaller companies. In 2010, working time at companies with between five and nine employees was 7% longer than at those with more than 300 employees (KEF, 2011). *Second*, the legal exemptions to working time limits for certain professions, such as hospital workers, could be narrowed. *Third*, the 40-hour workweek, which was extended in July 2011 to all firms with more than five workers, could be extended to firms with fewer than five workers. *Fourth*, the government should encourage the use of annual leave. While firms granted 25 days on average, workers used only 13, with the take-up rate lower at larger companies (KEF, 2011).

To boost female participation, the government introduced a bill in 2011 to promote the employment of part-time workers, which accounted for only 15% of female employment in 2010, well below the OECD average of 26% (OECD, 2011d). As part of this effort, it is promoting flex-time, which allows flexibility in arrival and departure times from work. However, part-time work is classified as non-regular employment, which brings a number of disadvantages, including lower hourly wages, which weaken the incentives for female part-time employment, particularly for highly-educated women with a high reservation wage.[4] This underscores the importance, discussed in Chapter 3, of reducing the disadvantages of non-regular employment. In addition, firms resist part-time employment as it breaks up the continuity of work, complicates personnel management and expands the need for training. According to the Korea Employers Federation (2011), the "majority view is that part-time regular employment is not appropriate for the Korean labour market".

Another factor discouraging female employment is the gender gap in earnings, despite government efforts, such as the 1997 Equal Opportunity Law, to eliminate discrimination against women. A 2006 law required both public and private firms with more than 1 000 workers to draw up an action plan and make voluntary efforts to promote gender equality. This initiative was expanded to firms with more than 500 workers in March 2008. Nevertheless, in 2010, female workers were paid only 60% as much as male workers, virtually unchanged from 1996 (OECD, 2011a). The gender wage gap, the largest in the OECD area, reflects the large share of women engaged in non-regular employment with low wages, as well as the low proportion in management positions. Indeed, women accounted for only 8% of managers in Korea between 2007 and 2009, well below the OECD average of 29%. It is important to create better job opportunities for women that would attract them to the labour market, in part by reducing dualism and expanding the weight of performance in setting wages, thereby narrowing the gender wage gap. In short, reforms

are needed to offer women the hours, jobs, wages and careers that would encourage them to work.

It is also important to expand the availability of affordable, high-quality childcare, which women cite as a major obstacle to employment (see below). In addition to boosting female participation, it would help achieve the government's goal of boosting the fertility rate. Indeed, OECD studies have found a positive relationship between childcare and female employment (OECD, 2007a) and between childcare and the fertility rate (D'Addio and Mira d'Ercole, 2005). Boosting the fertility rate also depends on reducing the burden of education. According to a survey of parents, the desired number of children is 1.81, well above the birth rate of 1.15 in 2009.[5] The burden of education is the major factor for having fewer children than their desired number; 57.9% cited education costs, 17.3% the cost of childcare and kindergarten and 9.8% the cost of university (Table 1.3). Households accounted for 30% of spending on educational institutions in 2008, the second highest in the OECD area, even before taking account of large outlays for private tutoring (Figure 1.9). In comparison, households' share was only 13% in the OECD area.

Table 1.3. **The desired number of children and obstacles to having them**

In per cent[1]

A. Desired number of children

		Total	Single	Married			
				Sub-total	No children	1 child	2 children
Do not want children		4.3	6.2	1.4	5.5	0.0	0.0
Want children (number)	1	24.0	20.9	29.3	34.5	47.8	0.0
	2	58.2	59.1	56.7	47.3	47.8	75.4
	3	13.5	13.8	12.9	12.7	4.3	24.6

B. The most serious obstacles to having children

	Total	Marital status		Income level		
		Married	Single	Up to 30 million won	30 to 50 million won	More than 50 million won
Education fees	57.9	55.5	59.5	56.6	59.5	69.2
Kindergarten and childcare fees	17.3	21.6	14.6	17.7	17.1	15.4
Medical costs	10.5	8.7	11.7	13.1	5.7	3.8
University tuition	9.8	7.8	11.1	9.4	10.1	7.7
Preparing a house for children	3.0	4.6	2.0	2.1	5.7	0.0
Children's wedding fees	1.4	1.8	1.2	1.1	1.9	3.8

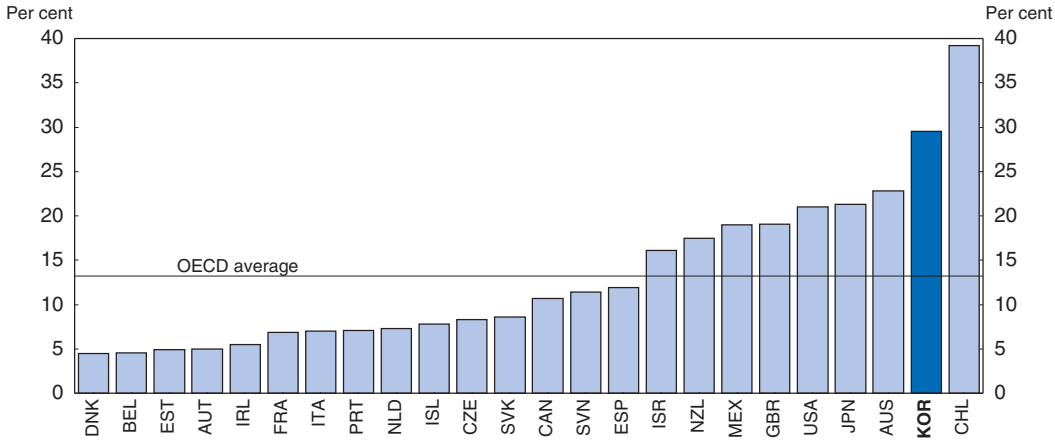
1. Based on a survey of 557 adults.

Source: Hyundai Research Institute (2010).

Promoting continuous employment of older workers

The labour force participation rate for the 55-to-64-age group was 62.7% in 2010, above the OECD average of 57.5%, reflecting the still-low coverage and small pensions from the National Pension Scheme (NPS). Moreover, the company pension system introduced in 2005 is also still in an early stage of development. The participation rate falls from a peak of 80% in the 45-to-49 group to 56% of the 60-to-64 group, with little change since 2000. Sustaining a high participation rate – or even increasing it to the highest levels in the OECD area – will be a challenge as pension systems develop.

Figure 1.9. **Households' share of total spending on educational institutions is high in Korea**[1]



1. Spending in 2008, excluding outlays on private, after-school tutoring.
Source: OECD (2011c), *OECD Education at a Glance 2011*.

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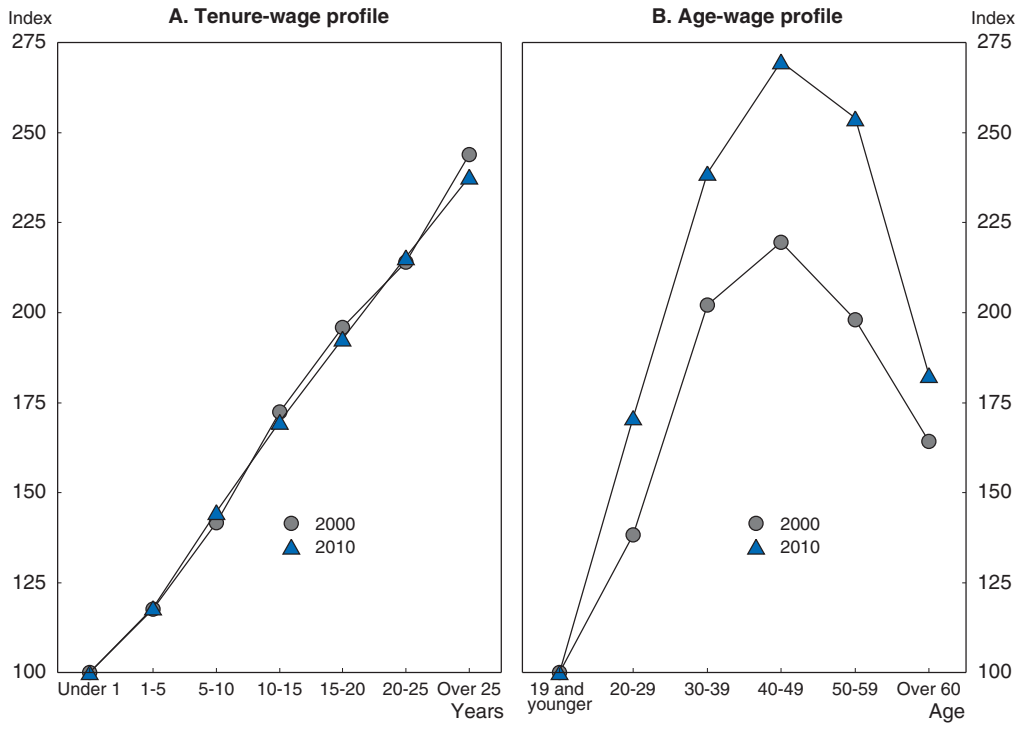
However, most workers leave firms at a relatively young age, as the mandatory retirement age set by firms in 2010 averaged 57 years and 95% of firms with more than 300 workers set the age below 60. Moreover, the length of tenure in firms peaks around 50, as many workers leave prior to the mandatory retirement age. Many firms force workers to retire before the mandatory age, either through incentives (bonuses) or penalties (shifting workers to undesirable jobs) (Klassen, 2011). A survey that asked firms which factors discourage the employment of older workers reported that the most important reasons were related to their ability, such as "low adaptability to change" (57.3% of firms), "lower work ability and capacity" (44.8%) and "difficulty in assigning to posts" (39.7%) (Table 1.4). Older workers tend to lack the skills needed in an increasingly knowledge-based economy, reflecting their low educational attainment compared to younger workers (see below). High wage costs due to the seniority-based wage system were cited by 43.1% of firms. Indeed, a worker with more than 25 years of tenure in a firm earns almost two and a half times more than a newly-hired employee (Figure 1.10). Firms agree to steep seniority-based wage profiles on the condition that they can force older workers to retire when wages surpass productivity. Finally, the cultural emphasis on age and seniority make it difficult for older

Table 1.4. **Reasons given by firms as obstacles to employing older workers**
In 2008[1]

Reasons	Per cent
Low adaptability to change	57.3
Lower work ability and capacity	44.8
High wages relative to productivity	43.1
Difficulty in assigning to posts	39.7
Unable to perform difficult tasks	32.9
Little motivation or enthusiasm for new work	25.8
Difficulty in accepting instructions	19.9
Frequent accidents	8.2
Lack of ability to co-operate with other workers	6.3

1. The survey included 648 firms. Firms were allowed to give three answers.
Source: Korea Labor Institute, *Survey on firms implementing the Wage Peak Compensation Scheme 2008*.

Figure 1.10. **Wage profile in Korea**[1]



1. Wages for 19-year-olds and younger and for less than a year are set at 100 in each year.
Source: Ministry of Employment and Labour, *Wage Structure Survey*.

StatLink http://dx.doi.org/10.1787/888932592679

persons to be supervised by someone younger, leading to "up-or-out" personnel practices. The difficulty of older workers in accepting instructions is cited by 19.9% of firms.

The departure of workers from firms at a relatively young age is a waste of human capital. According to the Korea Longitudinal Study of Ageing, 37% of workers became unemployed once reaching the mandatory retirement age. Among those who continue to work, only 38% remained as regular workers, while 10% moved into non-regular employment. Another 13% became self-employed, primarily in services with low productivity. Early departure also disrupts the NPS, as the unemployed, self-employed or non-regular workers tend to not contribute to the public pension systems. In short, the current system benefits firms at the expense of individuals and the government. Extending the employment of older workers would enhance Korea's growth potential, reduce excess labour in low productivity self-employment in services and promote the long-run sustainability of the public pension system.

The government's 2006 five-year plan to foster the employment of older persons included a number of initiatives: *i*) encouraging firms to raise their mandatory retirement age; *ii*) supporting the re-employment of older persons who left their jobs involuntarily because of mandatory retirement; and *iii*) promoting friendly working conditions for older people. The government provides wage subsidies to firms that guarantee employment until their retirement age, increase their retirement age or offer re-employment programmes to retirees. The government also offers subsidies for firms adopting the "wage-peak system", which allows workers to remain at the firm beyond the mandatory

retirement age, although at a wage below that based on seniority. In addition, it introduced a law in 2010 to prohibit age discrimination in recruitment and employment.

In December 2011, the government announced the "Second Basic Employment Promotion Plan (2012-16) for the Aged", which includes:

- Strengthening support for inter-generational job-sharing through subsidies for firms that hire young workers to offset shorter hours for older employees.
- Increasing subsidies for the wage-peak system.
- Strengthening skills by requiring large firms to provide a certain period of pre-retirement training to their middle-aged and older workers before forcing them to leave their jobs involuntarily.
- Expanding opportunities for older workers to participate in the Employment Success Package that links counselling, vocational training and job placement.
- Promoting the development of the company pension system.

While the various subsidy programmes may have some impact, they have not prompted significant changes in labour practices and tend to have large deadweight costs (2008 *OECD Economic Survey of Korea*).

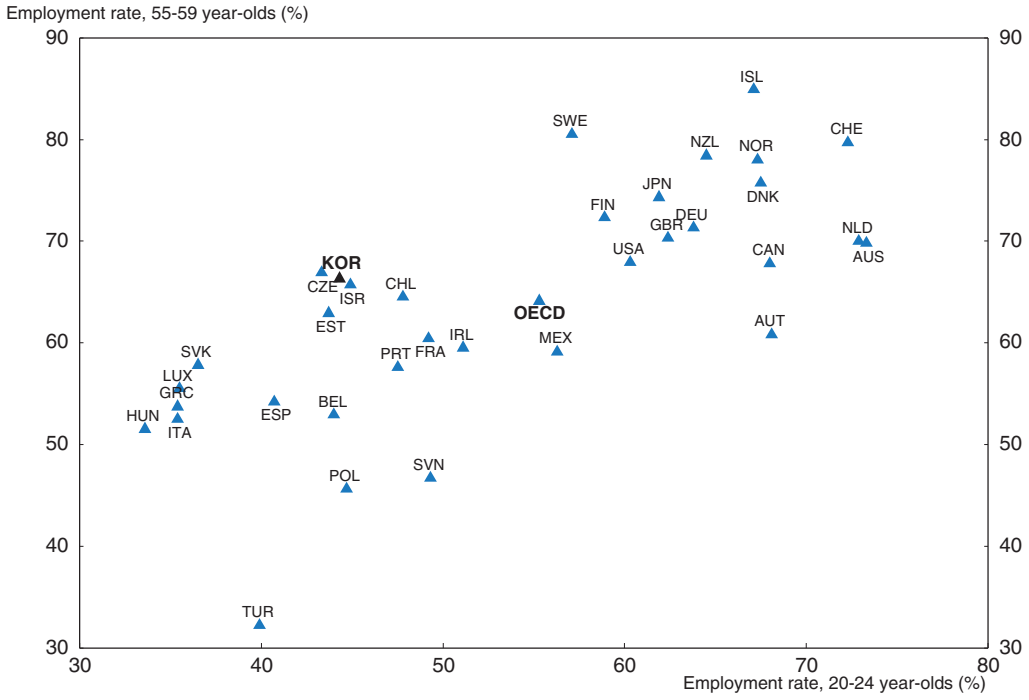
Given Korea's demographic challenge, it is essential to expand continuous employment for older persons in firms. This requires a flexible employment and wage system based on ability rather than age, thus ensuring that older workers remain attractive to firms. According to the government's wage system survey, there is a close positive relationship between the flexibility of a firm's wage system and its employment of older workers. Another survey reported that 59% of workers are willing to accept a salary cut in exchange for an opportunity to work past the mandatory retirement age (Pacific Bridge, 2011). In sum, weakening the seniority-based wage system in favour of a performance-based system is essential. However, such an approach is unpopular with workers and has even led to strikes when introduced.[6] Moreover, government subsidies to firms implementing the wage-peak system have had low take-up.

Additional government policies are needed in light of the difficulty of reaching a consensus between workers and firms to extend the employment of older workers. Among the OECD countries that allow firms to set a mandatory retirement age, Korea is one of the few that has not legislated a minimum age, leaving firms free to set the mandatory retirement age as low as they wish. The priority should be to set a minimum mandatory retirement age and gradually raise it to the pension eligibility age. Such an approach would put pressure on firms to adjust wages in line with productivity as workers grow older. The ultimate goal should be to abolish the right of firms to set mandatory retirement ages, thus helping to break down the link between seniority and wages. The 2008 Age Discrimination Act prohibits hiring based on age. The same logic should outlaw forced retirement based on age, which allows employment decisions to rest on a single criterion. Four OECD countries – the United States, Australia, Canada and the United Kingdom – have eliminated mandatory retirement. While this was done to improve human rights, the economic effects have been largely favourable (Klassen, 2011).

The abolition of mandatory retirement is often opposed on the grounds that it reduces employment opportunities for young people. However, this argument is based on the fallacy that an economy has a fixed number of jobs. In reality, limiting employment opportunities for some workers – such as older people – simply decreases economic

Figure 1.11. **Employment rates of younger and older workers**

Percentage of 55-59 year-olds and 20-24 year-olds in employment in 2010[1]



1. The correlation coefficient is 0.53.

Source: OECD ELS Database.

StatLink http://dx.doi.org/10.1787/888932592698

activity (OECD, 2006a). Indeed, the employment rates for younger and older workers across OECD countries are positively correlated and statistically significant (Figure 1.11).

It is also important to replace the mandatory retirement allowance with company pensions. The cost of the retirement allowance, which requires the payment of at least one month of wages for each year worked, rises sharply with seniority, thus increasing the expense of keeping older workers. The company pension system introduced in 2005 would provide better income security for retired workers, as well as reduce firms' incentives to retire older workers. Firms are now encouraged to establish either a defined benefit (DB) or a defined contribution (DC) system, based on an agreement with their workers. The company pension system now covers 9% of firms and 36% of employees, with two-thirds enrolled in DB plans. For employees who change jobs frequently, the government has created an Individual Retirement Pension (IRP) with deferred taxation. In July 2012, the government will launch a package of measures to revitalise retirement pensions: *i)* it will put limits on the interim settlement of the retirement allowance, which employees use for major purchases; *ii)* departing employees will be required to place their retirement allowance in an IRP; and *iii)* firms will be allowed to adopt both DB and DC plans. This should accelerate the development of the company pension system, as it has been slowed by the difficulty of reaching an agreement between workers and firms on whether to introduce a DB (favoured by workers) or a DC system (favoured by firms). DC systems have the advantage of favouring pension and labour mobility for all workers. The government should encourage IRP accounts to promote pension portability.

Encouraging labour force participation of discouraged youth

The participation rate for youth (the 15-to-24-age group) declined from 37% in 1994 to 25% in 2010, about half of the OECD average of 47%. Although this was due in part to rising enrolment in tertiary education, it also reflects a mismatch problem, as the rising share of youth with tertiary education have difficulty in finding suitable employment (see below). At the same time, Korean SMEs, which account for 99.9% of industrial firms and 87.7% of industrial employment, face a chronic workforce shortage that is partially filled by foreign workers. According to a 2011 government survey, 43% of small firms said that they currently face a labour shortage and 40% expect to face one. The survey also reported that the labour shortage in small firms was attributable to the lack of qualified job applicants, the high expectations of job applicants and the low income and employee benefits offered by SMEs. The mismatch has been exacerbated as young people enter tertiary education to avoid being trapped in non-regular employment.

It is essential to address the problem of overemphasis on tertiary education by improving vocational education (see below), providing effective training courses that meet labour market needs, particularly for SMEs facing labour shortages, and improving access to employment services for career consulting and job-search assistance. Job training for unemployed youth is limited, as such training tends to be provided by firms. Meanwhile, the government's traditional training programmes aimed at youth concentrated on university graduates, while neglecting less educated youth, although the emphasis was shifted by several recent initiatives. Perhaps most important is the "New Start Project for Youth", which was launched in 2008 to provide in-depth and individually-customised assistance. It targets those with a high school education or less, the long-term unemployed and other disadvantaged youth, to improve their employability.

In 2011, the New Start Project was merged into the "Packaged Employment Service" aimed at low-income people. The Service combines career consulting, work experience and job placement services, while providing six months of living subsidies of up to 200 000 won (about $175) a month. Recipients can receive assistance for up to 12 months, divided into three stages from career guidance to job placement:

- *First stage*: a course aimed at boosting participants' confidence and desire to work through individual counselling and career guidance, leading to an Individual Action Plan (IAP).
- *Second stage*: participants either begin vocational training or work, primarily in government-funded non-profit organisations or SMEs.[7]
- *Third stage*: participants are helped to find employment through intensive job-placement services. Participants who obtain a job receive an allowance of up to 1 million won ($890).

In 2011, the programme enrolled 20 000 participants (about 9% of the unemployed under the age of 30), of whom two-thirds were employed by the time they finished the training. In 2011, the government expanded the coverage to include other groups, such as the elderly and female family heads. The success of these employment support programmes depends on their acceptance by firms, suggesting a need for close links with the labour market. In addition, effective implementation of a standardised system of recognition of acquired skills is needed to improve employment prospects for youth. Overlapping qualification systems in the public and private sectors should be streamlined to respond to labour market demands.

As discussed in Chapter 3, reducing labour market dualism would improve the job prospects of youth, as well as women. This requires, in part, reducing employment protection. The experience of other OECD countries shows that a high level of employment protection for permanent workers hinders the integration of youth in the labour market (OECD, 2008b). Moreover, dualism boosts job instability. Around 57% of non-regular workers in Korea have worked less than one year in their current jobs, and only 22% more than three years. In contrast, only 25% of regular workers have worked less than one year, while 54% worked more than three years. In addition to the negative implication for wages, shorter tenure reduces the incentive for firms to invest in training non-regular workers. Indeed, the same study reported that only 2% of non-regular workers received firm-provided training, compared to 15% for regular workers. The high share of workers receiving limited training and weak human capital accumulation has negative implications for their productivity and Korea's growth potential.

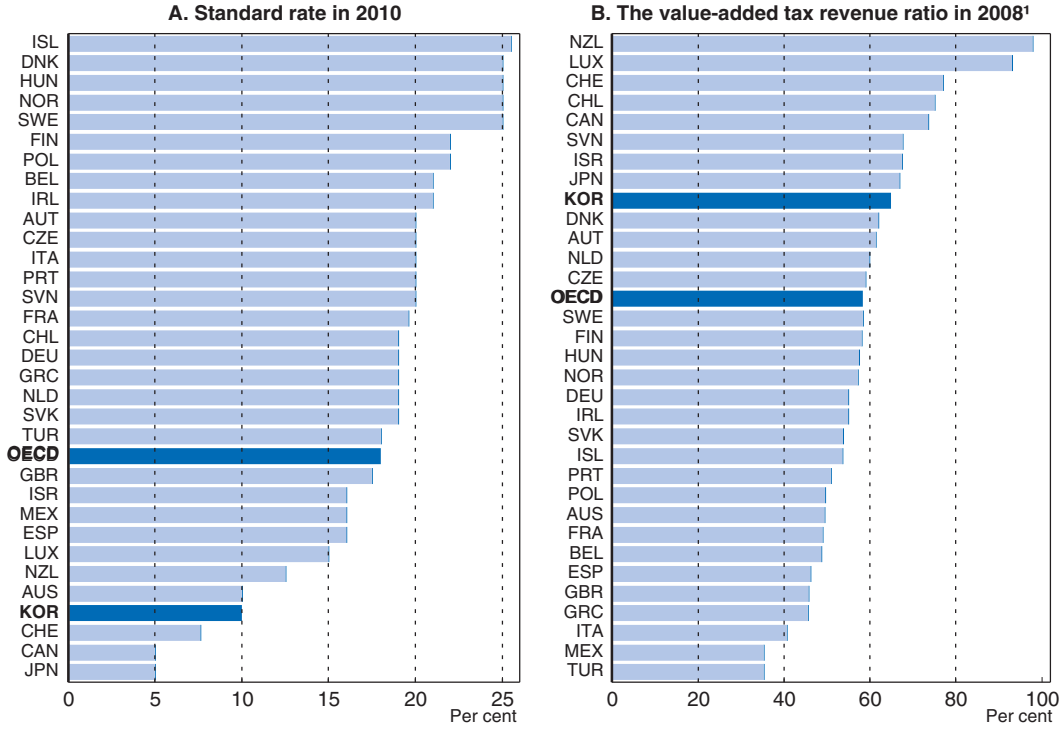
Tax policies to promote employment and growth

Taxes have an important impact on labour force participation, according to cross-country studies by the OECD. While taxes on labour reduce employment, saving and capital investment, thereby lowering potential growth, a low tax burden promotes jobs and growth by enhancing incentives for foreign direct investment (FDI) inflows, education and entrepreneurship. The overall "tax wedge" on labour, including social security contributions, was only 20% in 2010, the fourth lowest in the OECD area. Low taxes are an important factor explaining Korea's high labour inputs, which are 37% higher relative to the population than the United States, offsetting much of the gap in labour productivity.

The low tax burden in Korea is sufficient at present, as Korea had the second-lowest level of public spending, at 31% of GDP on a general government basis in 2010, compared to the OECD average of 46%. However, under current policies, population ageing alone is projected to boost public social spending from 7½ per cent of GDP at present to 20% by 2050 (Won *et al.*, 2011). Even with measures to squeeze spending in other areas, Korea's low tax burden will have to rise from its current level of 25% of GDP in 2010 to finance such spending. It is essential to finance rising spending through revenue increases that minimise the negative effect on growth. Indeed, the economic impact of higher taxes depends on how the revenue is raised as well as on how much is raised.

Pro-growth tax policy calls for limiting any increase in the tax wedge on labour income, while keeping the corporate tax rate low (2008 *OECD Economic Survey of Korea*). Such a strategy implies that revenue increases should come primarily from indirect taxes, notably the value-added tax (VAT), which has a smaller negative effect on labour supply. Korea's VAT rate is currently 10%, far below the OECD average of 18% (Figure 1.12). Another advantage is that the VAT is simple and relatively difficult to avoid or evade in Korea, and the VAT tax base is the ninth broadest in the OECD area. However, a shift from income to consumption taxes would reduce the tax system's already low redistributive impact, thus increasing inequality. The regressive impact should be offset by increasing the earned income tax credit (EITC) and well-targeted social spending (Chapter 3). Another important source of revenues should be environmental taxes and the receipts from revenues from auctioning ETS permits as part of the Green Growth Strategy (Chapter 2). Taxes on property-holding are a third option to raise revenue, as they have less negative impact on economic activity than direct taxes (Arnold *et al.*, 2011).

Figure 1.12. **Value-added taxes in OECD countries**



1. VAT Revenue Ratio = (VAT revenue)/[(consumption expenditures – VAT revenue) * standard VAT rate].

Source: OECD (2011), *Consumption Tax Trends*.

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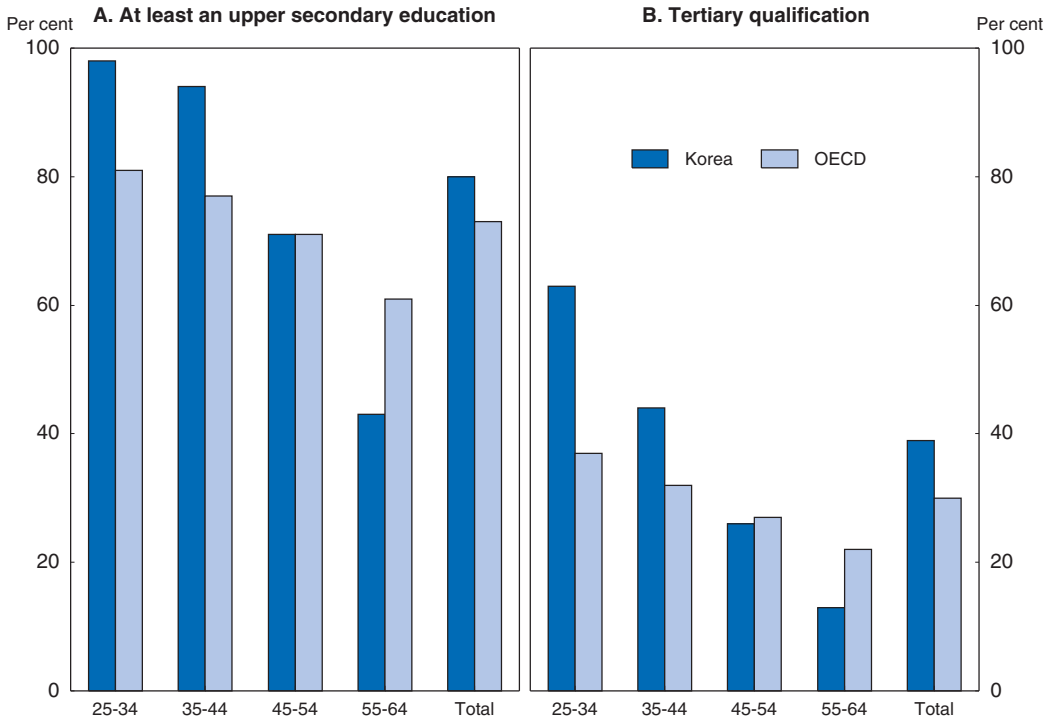
Policies to improve educational outcomes

Education played a key role in Korea's transformation from one of the poorest countries in the world to a leading industrial nation by promoting the development of human resources and technological change. Each phase of investment in education fuelled economic growth. The development of primary education following the Korean War supplied the workers suitable for the labour-intensive industries of the 1960s. The expansion of secondary education contributed to the development of capital-intensive industries in the 1970s and 1980s. The focus shifted to expanding tertiary education in the 1990s, laying the foundation for Korea's success in IT and the growth of a knowledge-based economy (Koh *et al.*, 2010). The exceptionally rapid development of education in Korea is illustrated by differences in the level of educational attainment for different age cohorts. The share of the population with at least a secondary education ranges from 98%, the highest in the OECD area, for young adults (25 to 34) to only 40% for older adults (55 to 64) in 2009 (Figure 1.13). Moreover, 58% of young adults have completed tertiary education, the highest share in the OECD, compared to only 12% of older adults (Panel B). In addition to these quantitative measures, Korea has consistently ranked near the top in the OECD in the Programme for International Student Assessment (PISA).

Improving the quality of education would promote productivity gains that would sustain growth in the face of demographic headwinds. This section discusses measures to boost quality in early childhood education and care (ECEC), primary and secondary schools and the tertiary system. Such reforms should help address the overemphasis on tertiary education and help the tertiary sector to play a bigger role in innovation.

Figure 1.13. **The rapid expansion of educational attainment in Korea**

In 2009



Source: OECD (2011c), *OECD Education at a Glance 2011*.

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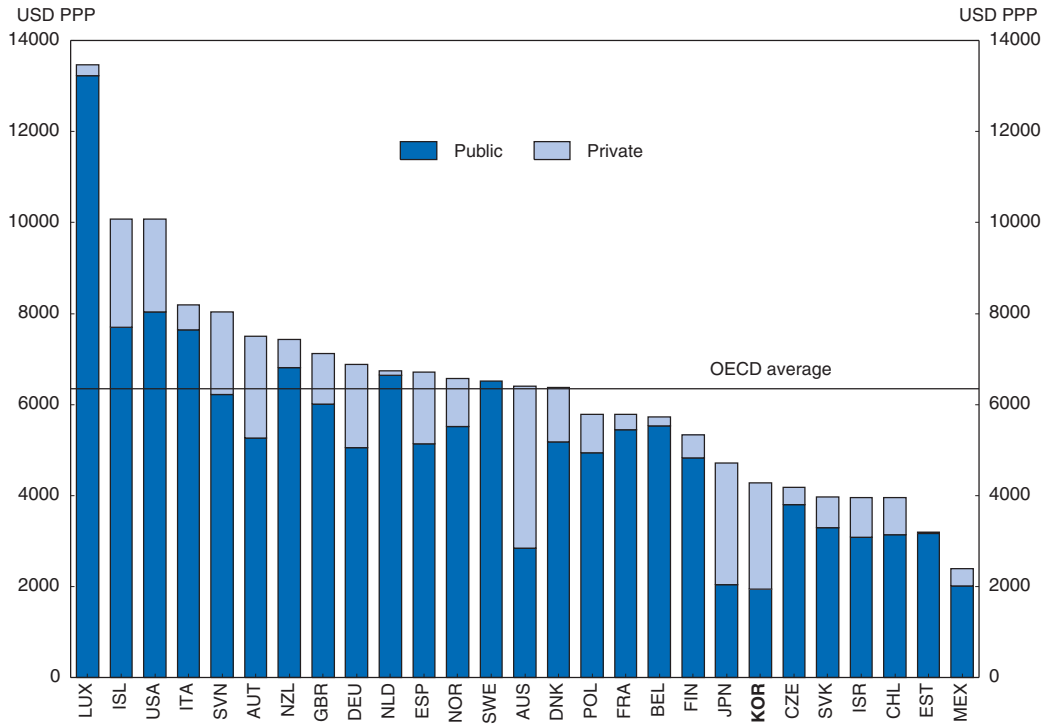
Upgrade the quality of early childhood education and care

ECEC plays an essential role in improving the educational development of children as well as increasing female labour force participation. Empirical work has established that fundamental cognitive and non-cognitive abilities are created well before the age of five. Investment in pre-primary education thus provides high rates of return by enhancing later school achievement. However, spending on pre-primary education per student in Korea in absolute terms was one-third below the OECD average in 2008 (Figure 1.14). In addition, the public-sector share was only 46%, compared with the average of 82%. As a share of GDP, public expenditure on pre-primary education in Korea in 2008 was the second lowest among OECD countries. Moreover, it is relatively low compared to spending at other levels of education; outlays per student in kindergarten in Korea was only 37% of that in primary and secondary schools, well below the OECD average of 70%.

The low level of spending on ECEC raises questions about its quality. Indeed, the PISA assessment found that participation in ECEC in Korea had the smallest impact among OECD countries on the educational achievement of 15-year-olds (OECD, 2010b). While the overall enrolment rate for children aged three to five is relatively high at 82%, the enrolment pattern is not conducive to high quality. Specifically, the share in childcare (42.4%), which has a weaker education orientation, is slightly higher than the more academically-focused kindergartens (39.7%), and the share in childcare has been increasing. Moreover, 89% of children are enrolled in private childcare, which is of lower educational quality than public institutions. Korea thus faces the intertwined problems of the low quality of childcare, a lack of places in higher-quality public centres and the

Figure 1.14. **Spending per student on pre-primary education is low in Korea**[1]



1. Annual spending based on full-time equivalent students in 2008.
Source: OECD (2011c), *OECD Education at a Glance 2011*.

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affordability of childcare fees. The waiting lists for public childcare co-exist with significant excess capacity in private facilities. A range of policies would help improve the quality of ECEC.

First, the growing share of childcare reflects the fact that it is cheaper than private kindergarten and private educational institutions known as *hagwons*, while there are waiting lists for public kindergarten. Raising tuition subsidies would improve access to private kindergarten. Over the medium term, adding more kindergartens to primary schools would expand capacity. The 2010 revision of the kindergarten law allows kindergartens to be attached to a primary or secondary school, but this is still rare in the capital region. The law should be revised to require new primary schools to include kindergartens.

Second, given that the expansion of kindergarten capacity will be gradual and insufficient to accept a significant share of the 0.6 million children aged three to five currently enrolled in childcare, it is important to upgrade the educational quality of childcare. The first step is to effectively implement the common curriculum for five-year-olds in childcare and kindergarten as planned in 2012 and then progressively harmonise programmes for younger children.

Third, other measures are needed to upgrade the quality of childcare. One option would be to construct more public centres. For example, the new mayor of Seoul, elected in 2011, has promised to increase the number of public centres by about one-third to 848. However, the creation of 200 centres of average size would accommodate less than 14 thousand children, only slightly reducing enrolment in private childcare centres, which

totals more than one million in Korea.[8] Achieving higher-quality childcare will thus depend on ensuring consistent quality across the ECEC system by upgrading the quality of private centres. This would require stricter assessment and accreditation, given that around a quarter of private childcare facilities are not accredited by the government. Accreditation should be made mandatory, as a 2009 study reported that the quality of childcare centres improved after the accreditation process, especially for larger facilities (Suh *et al.*, 2009). Moreover, the standards for accreditation should be made more stringent to strengthen parents' confidence in such centres. Finally, government tuition subsidies should be gradually limited to accredited childcare centres to promote quality.

Fourth, an upgraded accreditation system should be part of an effective information system on the quality of centres to help families make well-informed decisions. At present, the government discloses only the names of accredited centres, but not their scores or weaknesses, and parental awareness of the system is low. Enhancing transparency about quality would strengthen competition among centres.

Fifth, another key to higher quality is to raise the qualifications of teachers, particularly in private institutions. Raising the level of qualifications for teachers would help improve the quality of ECEC, while taking advantage of an under-utilised resource, given that around half of university graduates are unable to find regular employment.

Sixth, the fee ceilings imposed on private childcare providers are problematic. Private centres presumably wish to improve quality and attract children to fill their empty spaces, but have been blocked by the fee ceilings. Indeed, the ceilings have been set below the level the government calculates to be necessary to provide adequate care (2008 *OECD Economic Survey of Korea*). The government should relax the price ceiling and entry barriers to upgrade the quality of private childcare centres. To ensure the affordability of childcare, the relaxation of fee ceilings could be accompanied by some increase in tuition subsidies for parents using accredited childcare centres.

Over the medium term, the quality of ECEC would be best promoted by further co-operation between childcare and kindergarten, culminating in their eventual integration. OECD work shows that a systematic and integrated approach to policy development and implementation delivers high-quality ECEC services (OECD, 2006b). A number of OECD countries have integrated ECEC under one lead ministry, while others have been integrating services at the local level. Integration is not an end in itself, but instead a means to achieve better outcomes to strengthen the educational capacity of childcare. In addition to improving quality, countries' reasons for integrating ECEC include increasing enrolments, promoting fairness and streamlining management by eliminating a dual approach. The development of separate childcare and kindergarten systems aiming at largely the same age cohort in the absence of comprehensive planning has led to substantial administrative and financial inefficiencies (Rhee *et al.*, 2008). The integration of the two systems is essential to limit duplication, conflict and confusion, thereby cutting the administrative and overhead costs of running two parallel systems, in part by allowing them to be housed in the same facilities.

While initial efforts to promote integration in Korea in the 1990s failed (Rhee *et al.*, 2008), gradual integration based on the following steps would improve ECEC:

- Establishing common administrative and delivery systems. In particular, kindergartens could be allowed to care for children under three so that they target the same age group as childcare.

- Harmonising the regulations, standards and procedures for establishing childcare and kindergartens, thus allowing new facilities to be set up as integrated ECEC centres.
- Integrating staff qualifications, education and teacher training to allow individuals to teach at either type of institution. At present, the training of childcare and kindergarten teachers is compartmentalised in different institutions with different programmes. The best option would be to upgrade the qualifications for childcare staff to those required for kindergarten teachers. In addition, there is a sharp divide between the training of ECEC and primary school teachers.
- Creating a common quality assurance mechanism.
- Establishing a coherent financing system that is fair (Rhee *et al.*, 2008).

Improve the quality of primary and secondary schools through greater autonomy and diversity

While Korea is a top performer in the PISA, there is significant scope to improve schools in Korea, as the heavy reliance on *hagwons* suggests that there are weaknesses that prompt parents to turn elsewhere. It is important to address such weaknesses rather than relying on *hagwons,* with their associated costs and negative implications for equity (Chapter 3). To improve schools, the emphasis should be placed on greater local autonomy, expanding the scope for school choice at the primary level and increasing the diversity of institutions at the high school level. It is also important to adjust spending in the primary and secondary levels in line with falling enrolments. Although the number of students fell by 9% between 2000 and 2010, spending increased from 4.0% of GDP to 4.2% in 2008, reflecting a 12% rise in the number of schools and a 22% increase in the number of teachers. Looking ahead, the number of primary and secondary students is projected to fall further by a quarter by 2020 and by more than one-half by mid-century, requiring changes in spending priorities.

Autonomy and accountability

OECD research demonstrates that educational performance is better in countries with greater decentralisation (Sutherland and Price, 2007). Moreover, a recent international study comparing 20 different school systems found that decentralisation was the key to turning good education systems into excellent ones (McKinsey, 2010a). According to an OECD study, 46% of decisions in middle schools in Korea are taken autonomously by the school or within a framework set by a higher authority, a share close to the OECD average (OECD, 2008c). The greatest autonomy was found in the "organisation of instruction" (78%) and the lowest in "planning and structures" (25%) and "personnel management" (42%). Greater devolution of authority to schools would thus likely lead to better outcomes, given that Korea has made large strides in ensuring accountability. Indeed, since 2008, schools' performance in the National Assessment of Educational Achievement and school evaluation reports have been publicly available (*www.schoolinfo.go.kr*).

Increasing local funding of education and promoting closer integration of local education boards and offices of education with local general governments would enhance local autonomy in education. At present, the financing of local education authorities is provided primarily by central government grants, which are subject to central government rules and regulations. Shifting the taxes that provided education funding from the central to the local government level would increase local autonomy. Making local general

governments more responsible for education would promote diversity, innovation and competition. This could be achieved, for example, by having the candidates for governor and education superintendant run as a team in elections. In the long run, merging the local education authorities with the local general government would provide many advantages.

Expanding school choice

School choice is not permitted in Korea at the primary and middle school level. Promoting competition among schools by allowing greater school choice has been found to improve educational outcomes in the OECD area (Sutherland and Price, 2007). In the 2009 PISA, competition and performance do seem related among schools within OECD countries, although the relationship weakens once the socio-economic profile of students is taken into consideration, as more privileged students are more likely to attend the best schools (OECD, 2010b). In the case of Japan, school choice at the primary level has been permitted on a limited scale since 2000, and several studies have shown positive results on education outcomes.[9] The success of school choice depends on the availability of publicly-provided information, which has been expanded in Korea, as noted above. While school choice is beneficial for individual schools, it is important to avoid negative externalities in other schools. Moreover, it is essential that school choice be accompanied by policies to ensure that financial costs or other factors related to changing schools do not limit the ability of low-income households to exercise school choice.

Improve the quality of secondary schools through greater diversity

The equalisation policy adopted in 1969 for middle schools and 1974 for high schools allocates students by lottery. While this was aimed at reducing the intense competition for school entry, one consequence has been weak competition and diversification between schools, thereby reducing quality (Kim and Lee, 2003). The government launched the "300 High School Diversification Project" in 2008 to strengthen competition between schools and to increase diversity. Three new types of schools, which together will account for almost one-fifth of Korean high schools, have been introduced:

- *Autonomous private schools* are allowed significant autonomy in curriculum and management, in contrast to regular private schools. Although Korea has a large number of private schools, accounting for nearly one-fifth of middle school students and half of high school students, they follow the same curriculum and regulations as public schools, receive public funding and charge the same tuition fees as public ones. In contrast, the autonomous private schools, which do not receive government support, set tuition fees two to three times higher than for regular schools. By 2010, there were 51 independent private high schools and the number is to be increased.
- *Meister schools,* which emphasise workplace training, have been established to strengthen vocational education, based on the German model of training master craftsmen. Thus far, 28 Meister schools have been designated and the government hopes to increase the number to 50 by 2013. However, such schools are expensive as they are heavily subsidised by the government and require an agreement between the local government, the local school board and companies.
- *Special purpose high schools* focus on certain subjects, such as science, foreign languages and the arts (MEST, 2010). By 2011, 99 specialised high schools had been created, accounting for 2.7% of high school students. Tuition is three times higher than at general high schools.

Admission to the autonomous and specialised high schools is based on the lottery system, in line with the equalisation policy. However, given their higher tuition, it is important to provide financial aid to ensure access for low-income students to ensure that the diversification of high schools does not create inequality.

Upgrade the tertiary sector

The development of human resources through tertiary education needs to be exploited fully in the face of demographic trends and competitive pressures. The government has increased support to colleges, primarily two-year institutions that still account for almost a quarter of tertiary students despite shrinking enrolments since 2000. The public share of their funding was doubled from 6% in 2005 to 12% in 2009. In addition, it is reducing state intervention in colleges, such as regulations on curriculum, to increase their autonomy so that they can quickly respond to changing economic and social conditions. However, more autonomy should be accompanied by higher quality standards. *First*, colleges should be required to meet a carefully-defined set of standards, including output indicators, such as labour market outcomes. *Second*, workplace training, which is currently optional and subject to weak quality control, should play a larger role to the extent possible. *Third*, employers should be more involved in vocational education, for example, by including them in colleges' boards of directors.

Korea's university sector is not highly rated, in contrast to its primary and secondary schools, and it is widely acknowledged that rapid expansion has come at some expense to quality (OECD, 2009). Korea is now in the process of shifting the focus from quantity towards quality and from inputs to outcomes through the Brain Korea 21 (BK21) programme and the World Class Universities initiative. International ratings suggest some progress: the number of Korean universities in the top 200 in the QS international rankings increased from two in 2007 to five in 2010.[10] These initiatives, though, focus primarily on elite institutions. Quality concerns are a major issue at lower-ranking universities and colleges. Governance reform, in part to enhance transparency, incorporation to promote autonomy, reducing public funding to poorly-performing universities and internationalisation are keys to strengthening competition and improving performance.

Governance reform and transparency

The government introduced a new quality management system for tertiary institutions in 2007. *First*, universities were required to conduct self-evaluation of their education and research activities and publicly disclose the results, making them more responsible for quality. *Second*, it introduced a government recognition system for external assessment and accreditation agencies. The 2009 OECD study of Korea's university system criticised the previous accreditation system for its lack of coherence and rigour and the weak independence of the responsible organisations (OECD, 2009). To improve the accreditation process, the government selected two non-profit organisations as accreditation bodies for colleges and universities. Accreditation should be made effective based on criteria including output measures, such as the employment of graduates, and evaluations by the business sector. Although accreditation is not mandatory, most universities are expected to participate because accreditation results will be publicly disclosed and linked to government funding programmes beginning in 2014.

An effective accreditation system would facilitate a shift from a system of top-down, direct regulation, aimed at part in enforcing quality standards, to a more flexible approach.

According to the OECD's 2009 study, "Korea has developed a top-down system of control of universities and colleges, and despite efforts to accommodate differences among institutions, this tends on the whole to limit opportunities for flexibility and innovation in private and national/public institutions". The objective should be to motivate universities to improve quality through innovation rather than regulations that enforce uniformity. During the past three years, many regulations governing such areas as student quotas, admission criteria and tuition fees have been abolished to strengthen universities' autonomy and promote flexibility and responsiveness to changing conditions. The government should continue to aim at improving quality rather than constraining behaviour and more at informing stakeholders than enforcing rules.

The new quality management system should enhance transparency and competition between universities, thereby improving quality. A website (*www.academyinfo.go.kr*) provides information on graduation rates and employment rates of graduates to help students make rational choices. However, more detailed data for specific departments would be useful in helping to better inform student decisions. In addition, it would disrupt the single array of university ratings that drives the competition among high school students to enter the highest-ranking universities. For universities, rather than trying to compete across the board with elite institutions, they could attract students by achieving excellence in certain fields.

Incorporation of national universities

Seoul National University (SNU), Korea's premier institution of higher learning, was incorporated in December 2011. Previously, SNU had been a government entity, subject to strict regulations on its employment, budget and operations, thus restricting its competitiveness. Incorporation will shift governance to the Board of Trustees and allow the university to have autonomy in personnel management, now that professors are no longer civil servants. The selection of the university president will shift from election by the faculty to recruitment by the Board (Rhee, 2007). SNU will also gain autonomy over its budget, which in the past was provided for on a line-item basis, and it will be allowed to choose various funding methods, such as long-term loans or issuing university bonds. Moreover, it will be able to exercise ownership rights over its assets, which are considerable. Increased autonomy is accompanied by greater responsibility for performance. SNU will set outcome goals with the government and be evaluated on its success in achieving them. The government believes that incorporation will help make SNU one of the world's most prominent universities. Most national universities oppose incorporation, preferring government status over more independence. Nevertheless, if this initial experiment proves successful in raising educational quality at SNU, incorporation should be applied to other universities.

Reducing funding to low-performing tertiary institutions

Korea is a country with too many tertiary institutions and those outside of Seoul already have difficulty in filling their student quotas (OECD, 2009). All but a handful ran operating deficits between 2005 and 2008 (McNeil, 2011). Demographic projections suggest that the number of high school graduates will fall below the current admission quotas for tertiary institutions by the end of the decade. By 2030, the university-age cohort will be one-third below its 2010 level, according to the government's population projection. To induce voluntary restructuring of insolvent universities, the government provides

subsidies for amalgamation, reveals financial information about weak universities and reduces their student quota. Thus far, M&As have merged 23 private universities into 11, making only a small impact on the sector, which numbers 180 institutions. In 2010, the government consulted with 57 private universities, reduced admission quotas by 3 000 students (only 0.1% of the total) and limited loans to students in 23 universities. The government is revising relevant laws to create an institutional exit for private institutions so that they can go through voluntary liquidation. Colleges and universities' status as non-profit entities complicates M&As, suggesting that at least a temporary change in their status would facilitate restructuring. Finally, providing adequate information through an accreditation and quality assurance system is essential to ensure that downsizing results in the restructuring, merger and closure of the weakest institutions. As for national universities, 20 have been consolidated into ten.

However, these measures have been too weak to prompt a significant degree of consolidation in the tertiary sector. Beginning in 2012, the government will reduce public support to institutions that perform poorly. A committee of 20 experts evaluates tertiary institutions each year based on eight criteria, including employment rates of students after graduation, how well institutions fill their student quotas and their tuition increase rate. The committee identifies the bottom 15% (about 50 private institutions), which are not eligible for project-based or institutional-level grants during the following year. In addition, loans to students at some of these institutions that fail to meet additional evaluation requirements are restricted,[11] but not scholarships and grants.[12] While these institutions are largely funded by tuition payments, the stigma of being classed in the lower 15% is expected to prompt management changes in order to earn a higher ranking the following year. Some universities, though, have complained that uniform standards, such as for employment rates, do not adequately take account of the characteristics of some universities, such as art schools (*Joongang Daily*, 1 October 2011).

Internationalisation of the university sector

The university system has only a limited degree of internationalisation, as reflected in the relatively low number of students from overseas and a near absence of foreign higher education institutions operating in Korea. The share of foreign students in tertiary education in Korea in 2009 was only 1.6%, well below the OECD average of 8.7%, although the number has increased rapidly since 2000. In contrast, Korea was the largest source of foreign students in OECD countries, accounting for 5% of the total in 2009. These students amount to about 7% of Korean tertiary students. Attracting foreign students would upgrade the quality of tertiary education in Korea, in addition to providing high-skilled human resources for Korea. Moreover, it would help mitigate the severe financial situation of tertiary institutions in Korea. For these reasons, the government established the "Study Korea Project Plan" in 2008, with a target of attracting 100 thousand foreign students by 2012 by improving the competitiveness of higher education. To this end, the government is expanding exchanges of students and faculty, facilitating joint research among universities, and running a cross-border joint degree system through the Campus Asia programme with China and Japan. In 2011, the government introduced the Accreditation System on Recruitment and Support of International Students in order to better attract and assist outstanding foreign students and improve the quality of education. Policies to attract outstanding students to leading graduate schools should be strengthened, rather than simply recruiting foreign students to fill empty chairs as Korea's university-age

population declines. The competition is severe as other Asian countries have similar targets to attract foreign students, including Japan (300 thousand by 2020), China (500 thousand by 2020) and Singapore (150 thousand by 2015).

Facilitating the entry of accredited foreign institutions would also stimulate competition and upgrade the competitiveness of universities. At present, there are only three foreign universities operating in Korea,[13] as some regulations to ensure the quality of education and to protect consumers, such as standards for setting up campuses (buildings and property), act as entry barriers. In addition, the non-profit juridical person requirement for schools discourages the entry of foreign educational institutions by prohibiting them from remitting profits.

Improving vocational education to address the overemphasis on tertiary education

There are complaints from the business sector about a lack of skills among new graduates. For example, the Korea Employers' Federation estimates that it takes 30 months and $100 thousand on average to train new graduates. Another study estimated that the average length of training for university graduates is 8.4 months, with the length increasing with the size of the company (KRIVET, 2007). Upgrading vocational education is important to boost labour productivity.

At the same time, it would help Korea address its problem of overemphasis on tertiary education. Even in 2007 – with real output growth of 5.1%, a 1.2% rise in employment and an unemployment rate of 3.2% – only 51.9% of university graduates were able to find regular jobs in the year following graduation (Table 1.5). Another 16.1% accepted non-regular jobs, primarily in temporary positions. While some graduates were enrolled in graduate school or fulfilling the military service obligation (21 months), 20.5% were not working. In 2009, around 25% of youth with tertiary education were neither in employment nor in education, the second-highest share in the OECD area and double the OECD average

Table 1.5. **Employment outcomes for university graduates in 2007**

	Graduates	Employees	Regular	Non-regular				Self-employed	Not working	Others[4]
				Sub-total	Temporary[1]	Daily[2]	Family[3]			
Total	**560 632**	**390 180**	**290 907**	**90 470**	**60 749**	**26 633**	**3 088**	**8 803**	**115 073**	**55 379**
		69.6%	51.9%	16.1%	10.8%	4.8%	0.6%	1.6%	20.5%	9.9%
Colleges	215 040	173 804	132 783	37 678	25 248	11 584	846	3 343	27 527	13 709
		80.8%	61.7%	17.5%	11.7%	5.4%	0.4%	1.6%	15.8%	6.4%
Teacher universities	5 929	4 109	3 680	429	417	12	0	0	1 537	283
		69.3%	62.1%	7.2%	7.0%	0.2%	0.0%	0.0%	25.9%	4.8%
General universities	277 858	168 254	120 618	44 333	28 644	13 608	2 081	3 303	75 842	33 762
		60.6%	43.4%	16.0%	10.3%	4.9%	0.7%	1.2%	27.3%	12.2%
Industrial universities	26 490	19 714	15 701	3 299	2 425	737	137	714	5 354	1 422
		74.4%	59.3%	12.5%	9.2%	2.8%	0.5%	2.7%	20.2%	5.4%
Other universities	282	109	48	57	57	0	0	4	16	157
		38.7%	17.0%	20.2%	20.2%	0.0%	0.0%	1.4%	0.5%	55.6%
Graduate school (general)	35 033	24 190	18 077	4 674	3 958	692	24	1 439	4 797	6 046
		69.0%	51.6%	13.3%	11.3%	2.0%	0.1%	4.1%	13.7%	17.2%

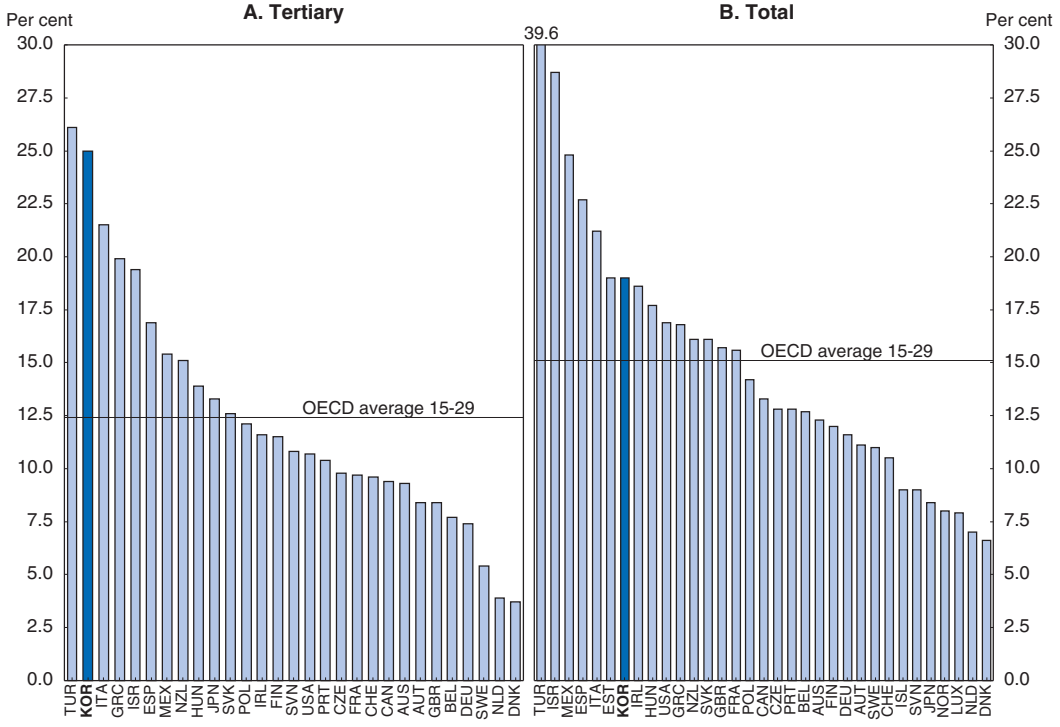
1. Temporary employees are those whose labour contracts are for less than one year.
2. Includes part-time employees who work more than 18 hours a week.
3. Family employees are unpaid workers in establishments owned by family or relatives.
4. Includes those continuing to advanced studies and men fulfilling their military service obligation.

Source: Ministry of Education, Science, and Technology.

(Figure 1.15). Moreover, the rate is higher for tertiary graduates in Korea than for those with high school education, in contrast to most other OECD countries. Among those who remain in the labour force, 40% of tertiary graduates spent more than three months to find their first job. In addition, a growing number of graduates do not find employment corresponding to the skills they acquired in education. For example, about 40% of university graduates in natural and social sciences do not find jobs in their field of study (OECD, 2007b).

Figure 1.15. **The share of inactive youth with tertiary education is high in Korea**

The share of the 15-to-29-age group neither in employment nor in education in 2009[1]



1. Data on the category ISCED 4, which captures programmes that straddle the boundary between upper secondary and post-secondary education, are not available in Korea and eleven other OECD countries. This category could potentially include persons in an apprenticeship or training outside of school. The numbers in the chart therefore overestimate the number of youth who are inactive in these countries.

Source: OECD (2011c), *OECD Education at a Glance 2011* and Statistics Korea, *Economically Active Population Survey*.

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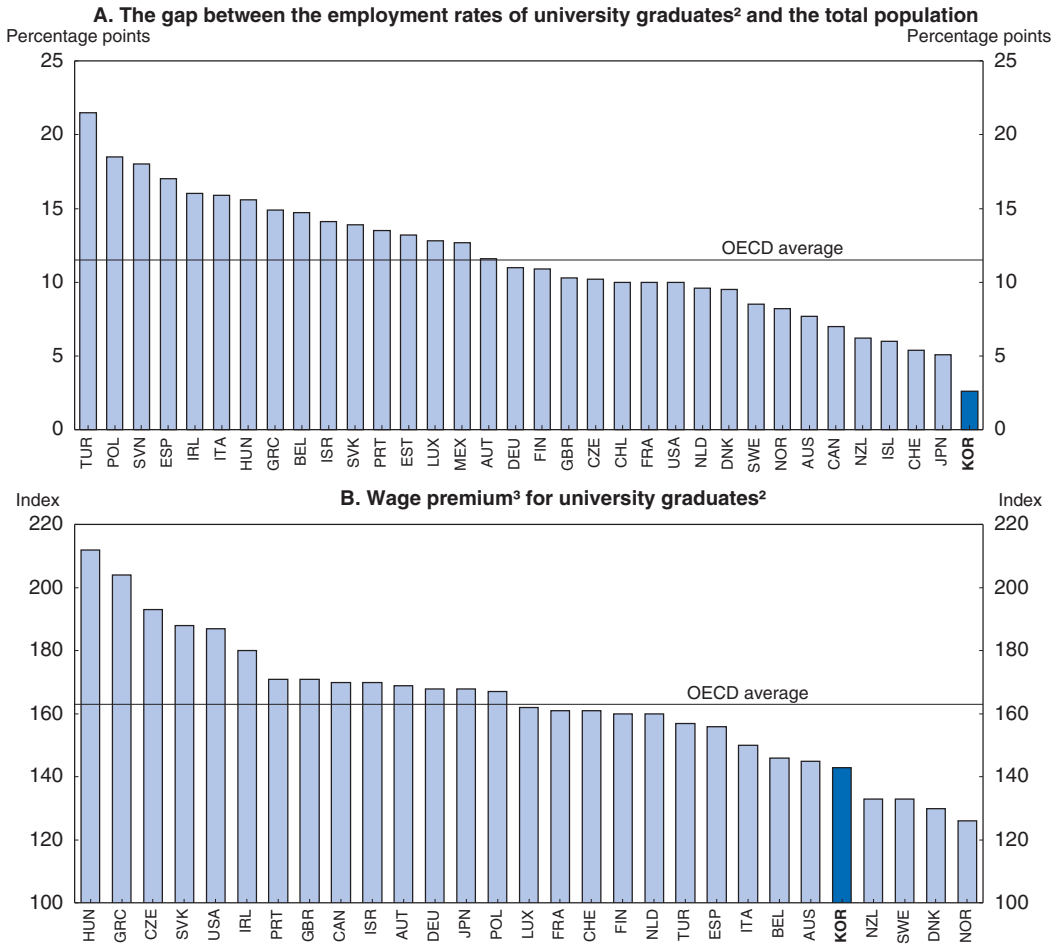
The problem of overemphasis on tertiary education is evident in other aspects of the labour market. *First*, the employment rate for university graduates in the 25-to-64-age population in Korea was only 2.5 percentage points above the rate for the overall population in 2009, the smallest gap in the OECD area (Figure 1.16).[14] Similarly, the unemployment rate for university graduates was almost identical to the overall unemployment rate, compared to an average 2.5 percentage-point gap in the OECD area. *Second*, the wage premium for tertiary graduates in Korea is relatively low; tertiary graduates earned only 43% more than high school graduates, as against an OECD average of 63% (Panel B).

While university graduates are underused, SMEs face labour shortages, as noted above. In addition to creating mismatches in the labour market, the overemphasis on tertiary education imposes a huge financial burden on Korea. As President Lee Myung-bak

Figure 1.16. **International comparison of labour outcomes for university graduates in 2009**[1]



1. For the population between the ages of 25 and 64.
2. Defined as tertiary-type A and advanced research programmes.
3. The wages of upper secondary and post-secondary non-tertiary graduates is set at 100.

Source: OECD (2011c), *OECD Education at a Glance 2011*.

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stated, "Reckless university enrolment has aggravated both the private education budget and youth unemployment. It's a huge loss, not just for households but the whole country" (*Financial Times*, 11 June 2011). The share of GDP devoted to tertiary education – public and private – in 2009 was the highest in the OECD area at 2.6%. In addition, much of the private education expense – another 2% of GDP – is focused on gaining admission to high-ranking universities. Addressing the problem of overemphasis on tertiary education is difficult as it is based on the national consensus that higher education is the key to success (Chang, 2009). A university degree has become the standard expectation, regardless of students' capabilities or career aspirations. It is necessary to gradually shift the focus from chasing the status and prestige of high-ranking universities to rewarding the acquisition of skills that are demanded in the labour market. In 2011, the government signed an agreement with five major business organisations that agreed to provide more job opportunities for high school graduates, especially from vocational schools.

Following the 2008 global crisis, the share of high school graduates advancing to tertiary education fell to 72.5 in 2011 from its peak of 84%.[15] However, it is too early to say whether this is a permanent trend or a temporary response to the 2008-09 economic crisis. In any case, the share remains high. In order to reduce the blind pursuit of higher education, it is important to improve vocational education at both the secondary and tertiary level and demonstrate that it leads to favorable labour market outcomes. At the secondary level, vocational high schools' share of students fell from 42% in 1995 to 24% in 2010, reflecting the below-average academic achievement of their students. Moreover, despite the efforts of vocational high schools to keep up with changes in the industrial structure and technology, the range of occupations for which vocational high school graduates are qualified has fallen, resulting in continued mismatch problems (Park *et al.*, 2010). A 2010 government survey suggests that the share of vocational schools is set to fall further: only 6.4% of the parents of middle school students want their children to attend a vocational school, compare to 64.4% for general schools (MEST, 2011). In contrast, independent private high schools and specialised schools are becoming increasingly popular.

In 2010, the government introduced the "Plan for Enhancing High School Vocational Education" to improve vocational high schools and Meister schools through financial assistance and other support. The employment rate of vocational high school graduates increased from 19% in 2010 to 42% in 2012. In addition, 81% of seniors in Meister schools have already signed employment contracts.

The role of colleges would also be enhanced by improving the system of qualifications. The two parallel systems of standards – "occupational standards" (managed by the Ministry of Employment and Labour) and "skills standards" (managed by the Ministry of Education, Science and Technology) – have been united under the new "competency standards" and will be the basis for national technical qualifications (NTQ). At present, vocational programmes do not systematically reflect occupational standards and the courses do not lead to the qualifying exams. Instead, students typically have to prepare separately for those exams. Moreover, Korea still has thousands of private-sector qualifications established by companies and training institutes. It is important to converge towards a core set of standards, taking into account private-sector views, in order to include the skills that they value. Such an approach would allow college courses, as well as those in vocational high schools, to be aligned with the NTQ requirements and prepare students for the NTQ exams. Moreover, making it possible to take an NTQ exam without completing a college programme would further reduce unnecessary tertiary education.

Other policies would enhance the role of the two-year colleges in competing against universities, which have been gaining students by encroaching on the vocational territory of colleges. *First*, the government should introduce policies to discourage universities from entering fields that are more appropriately handled at the college level to stop such "institutional drift". For example, some lower-quality universities now offer four-year programmes in cosmetology, which are surely jobs that should be filled by college or secondary school graduates (OECD, 2009). *Second*, improving co-ordination between colleges and universities would help to lessen the stigma of colleges by making them a stepping stone to university. Only 6% of college graduates enter a university programme and they are poorly prepared as there is little co-ordination of curricula between the two systems.

Labour market reforms to break down dualism would also help resolve the problem of overemphasis on tertiary education. Tertiary graduates accounted for 53.6% of regular workers in 2011, but only 31.5% of non-regular workers. Students know that a tertiary degree enhances their chance of finding regular employment, which offers higher salaries, greater job stability and better coverage by the social safety net. Breaking down dualism would reduce this incentive for higher education. More generally, increasing the weight of performance in determining wages – while reducing that of education and seniority – would better reward the skills learned in education and reduce the motivation for tertiary education.

Increasing the role of the education system in innovation

Korea's gross domestic expenditure on R&D (GERD) amounted to 3.6% of GDP in 2009, well above the OECD average of 2.4% and the third largest in the OECD. The "577 Initiative" targets an increase in GERD to 5% of GDP in 2012 to make Korea one of the "seven major science and technology powers in the world" (MEST, 2009).[16] The government supports private R&D through direct funding and tax incentives, which together provide the largest support for R&D after France in the OECD area (Chapter 2). Business enterprises accounted for 71.1% of R&D funding and performed 74.3% of R&D in 2009 (Table 1.6), the third-largest share in the OECD area. In contrast, universities accounted for only 0.9% and 11.1%, respectively, the second lowest in the OECD area (Figure 1.17), despite the fact that Korea's share of articles in the Science Citation Index doubled from 1.3% in 1999 to 2.5% a decade later, the 11th-highest in the world. Korea also stands out for its low degree of internationalisation in R&D: it ranks as fourth lowest in the OECD measure of international collaboration among institutions (OECD, 2011e).

Table 1.6. **Flows of R&D funds in 2009**

A. R&D Funding

	Share of total R&D spending	Allocation between R&D actors[2]			
		Government	Universities	Business enterprises	Total
Government[1]	27.8	49.5	32.2	18.3	100.0
Universities	0.9	1.4	93.5	5.1	100.0
Business enterprises	71.1	1.2	1.8	97.1	100.0
Foreign sources	0.2	18.9	18.9	62.2	100.0

B. Sector performing R&D

	Share of total R&D performed	Funding source for R&D performed				
		Government	Universities	Business enterprises	Foreign sources	Total
Government[1]	14.7	93.9	0.1	5.7	0.3	100.0
Universities	11.1	80.8	7.6	11.3	0.4	100.0
Business enterprises	74.3	6.9	0.1	92.9	0.2	100.0

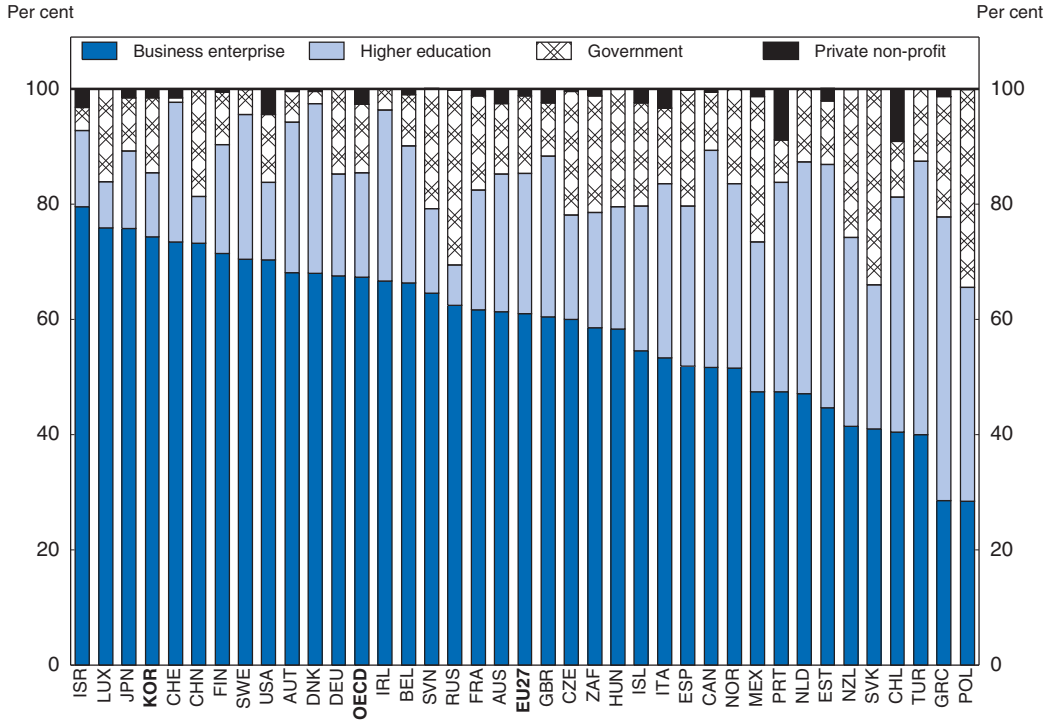
1. Includes private non-profit institutes.
2. By which sector performs the R&D.

Source: OECD R&D Statistics Database.

Increasing the effectiveness of R&D requires expanding the interaction between researchers in business, government and universities. In 2009, 97.1% of the R&D financed by enterprises was performed by enterprises and only 1.8% at universities (Table 1.6),

Figure 1.17. **R&D expenditure by performing sector**

As a per cent of gross domestic expenditure on R&D in 2009 or latest year available



Source: OECD Main Science and Technology Indicators Database.

StatLink http://dx.doi.org/10.1787/888932592812

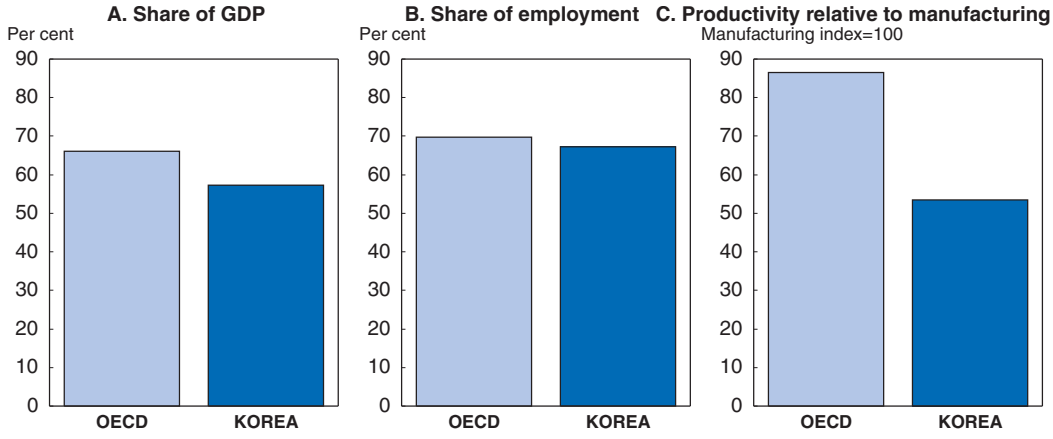
which employ around three-quarters of the PhDs in Korea. Despite relatively low wages, universities attract researchers because of the high level of social respect accorded to professors and job security, in contrast to business research centres. The weak links between R&D in firms and universities may reflect the concentration of firms in applied research. However, as Korea has reached the technology frontier in many areas, the importance of basic research – typically concentrated in universities – should play a growing role. Given that the transfer of knowledge and technology takes place to a large extent through people, it is important to promote the mobility of researchers by expanding the use of fixed-term contracts and performance evaluation at universities and by requiring young researchers to change their organisational affiliation at least once after graduation before obtaining a permanent position. Finally, the share of government R&D funding for universities that is allocated competitively should be increased.

Promoting the development of the service sector

Although the share of the service sector increased from 50% of GDP in 1990 to 57% in 2008, it is the second lowest in the OECD area and well below the OECD average (Figure 1.18). The upward trend in the share of services in output is likely to continue as Korea continues its process of economic convergence. The development of the service sector is a key determinant of economic growth, given its size and its impact as an input in other parts of the economy, such as manufacturing. However, labour productivity in the service sector has consistently lagged behind that in manufacturing, slowing from an annual rate of 2.6% during the 1980s to 1.2% between 1997 and 2007, in contrast to

Figure 1.18. **Korea's service sector is relatively small and has low productivity**

In 2008, based on 2005 prices for value added



Source: OECD *National Accounts Database* and *STI Database*.

StatLink http://dx.doi.org/10.1787/888932592831

nearly 9% growth in manufacturing (Table 1.7). Consequently, by 2008, service-sector productivity was only about half of that in manufacturing, the largest gap in the OECD area (Figure 1.18, Panel C). Moreover, the contribution of market services to aggregate productivity growth in Korea between 2000 and 2008 was one of the smallest in the OECD area and was partially offset by a fall in other services.

Table 1.7. **Labour productivity growth in manufacturing and services**

Annual growth rate of value added per employee in per cent

Industry	ISIC code	1980-1990	1990-1997	1997-2007
Manufacturing	15 to 37	6.4	8.7	8.7
Market services	50 to 74	4.3	1.6	2.6
Non-market services	75 to 99	–0.2	1.7	–2.0
Total services	50 to 99	2.6	1.5	1.2
Total economy	**1 to 99**	**5.5**	**4.4**	**3.3**

Source: Bank of Korea, *National Accounts*.

To some extent, low service-sector productivity is the legacy of an export-led growth strategy that attracted the most productive resources into manufacturing, which enjoyed a number of advantages, including tax breaks, government R&D support and lower electricity prices (Chapter 2). The government is making efforts to bridge the productivity gap between manufacturing and services. *First*, it has been trying to level the playing field for the service sector by expanding the number of service businesses that receive tax benefits. *Second*, it has been removing entry barriers and trying to boost competition in services. *Third*, it has been trying to stimulate R&D investment by providing tax credits to 11 knowledge-based service industries. In some cases, it would be better to level the playing field by removing preferences granted to manufacturing rather than extending them to services (McKinsey, 2010b). Moreover, a comprehensive quantification of the various forms of explicit and implicit support to manufacturing would be helpful. In addition, a stronger won would promote the development of some non-tradable services by boosting domestic demand.

Policies to strengthen competition in services are particularly important, given that "overly strict regulations are obstructing investment and competition" (MOSF, 2009). The keys to stronger competition include eliminating domestic entry barriers, accelerating regulatory reform, upgrading competition policy and reducing barriers to trade and inflows of FDI. The government has significantly reduced entry barriers, as reflected in the improvement in Korea's ranking in the "cost of starting a new business" from 126th in the world in 2008 to 24th in 2011 (Table 1.8). Moreover, regulation in network sectors has also fallen, although it remains well above the OECD average (OECD, 2012). In addition, competition policy should be further strengthened. *First*, even though financial penalties have risen, their deterrent effect is still weaker than in most other OECD countries,

Table 1.8. **Ease of starting a business in OECD countries**

	2011 world rank	2010 world rank	2008 world rank	Procedures (number)	Time (days)	Cost[1]	Minimum capital[1]
New Zealand	1	1	1	1	1	0.4	0.0
Australia	2	2	3	2	2	0.7	0.0
Canada	3	3	2	1	5	0.4	0.0
United States	13	9	6	6	6	1.4	0.0
Ireland	13	11	5	4	13	0.4	0.0
United Kingdom	19	17	8	6	13	0.7	0.0
Korea	**24**	**60**	**126**	**5**	**7**	**14.6**	**0.0**
France	25	21	14	5	7	0.9	0.0
Portugal	26	59	34	5	5	2.3	0.0
Chile	27	62	55	7	7	5.1	0.0
Slovenia	28	28	41	2	6	0.0	43.6
Denmark	31	27	16	4	6	0.0	25.0
Belgium	36	31	20	3	4	5.2	18.9
Iceland	37	29	17	5	5	3.3	12.6
Finland	39	32	18	3	14	1.0	7.3
Hungary	39	35	27	4	4	7.6	9.7
Norway	41	33	33	5	7	1.8	19.4
Israel	43	36	24	5	34	4.4	0.0
Estonia	44	37	23	5	7	1.8	24.4
Sweden	46	39	30	3	15	0.6	14.0
Turkey	61	63	43	6	6	11.2	8.7
Mexico	75	67	115	6	9	11.2	8.4
Slovak Republic	76	68	48	6	18	1.8	20.9
Italy	77	68	53	6	6	18.2	9.9
Netherlands	79	71	51	6	8	5.5	50.4
Luxembourg	81	77	69	6	19	1.9	21.2
Switzerland	85	80	52	6	18	2.1	26.9
Germany	98	88	102	9	15	4.6	0.0
Japan	107	98	64	8	23	7.5	0.0
Poland	126	113	145	6	32	17.3	14.0
Spain	133	125	140	10	28	4.7	13.2
Austria	134	130	104	8	28	5.2	52.0
Greece	135	147	133	10	10	20.1	22.8
Czech Republic	138	149	86	9	20	8.4	30.7
Average				**5.4**	**12.0**	**5.1**	**13.4**

1. As a per cent of income per capita.
Source: World Bank (2011), *Doing Business 2012*.

indicating a need for further increases. Moreover, criminal penalties, which are rarely applied, should be used more frequently. *Second*, the investigative powers of the competition authority, the Korea Fair Trade Commission, need to be expanded. *Third*, the number of exemptions from the competition law, including for SMEs, should be further scaled back.

Greater openness to the world economy is another priority to boost productivity in services. The stock of FDI in Korea, at 13% of GDP, was the third lowest in the OECD area in 2010 and the share of inward FDI in services was less than half. Consequently, the stock of FDI in services in Korea was only 6% of GDP, compared to an OECD average of 37%. Strengthening international competition requires reducing barriers to FDI, including foreign ownership ceilings in key services, and liberalising product market regulations. In addition, it is important to foster a foreign investment-friendly environment, thereby encouraging more cross-border M&As, enhance the transparency of tax and regulatory policies and reform the labour market. The treatment of manufacturing and services in the Free Economic Zones should be more balanced. Finally, the emphasis on special zones should not distract policymakers from the top priority of improving the business climate.

The problems in services are closely linked to those of SMEs, which account for about 90% of service-sector employment. While the major business groups, known as *chaebol,* were forced to adopt more commercially-based corporate governance structures and to restructure aggressively, the government essentially bailed out SMEs through increased public subsidies and guarantees during the 1997 crisis (Claessens and Kang, 2008). Moreover, this support was not fully scaled back once the crisis had passed. Consequently, the SMEs have not been as aggressive in reforming their business model and their performance has increasingly lagged that of large firms (2008 *OECD Economic Survey of Korea*). In 2009, to prevent widespread bankruptcies and minimise systemic risk, the government further increased assistance to SMEs by: *i)* sharply raising guarantees by public financial institutions for lending to SMEs; *ii)* advising banks to automatically roll over loans to SMEs (excluding those already delinquent on existing loans); *iii)* creating two initiatives to aid SMEs in distress; and *iv)* doubling government spending to assist SMEs. Moreover, government assistance to banks, such as guarantees on their foreign borrowing and capital injections, were contingent on increased lending to SMEs. While expanded financial support to SMEs prevented some bankruptcies and job losses, it has also exacerbated moral hazard problems by increasing the reliance of SMEs and banks on public assistance (2010 *OECD Economic Survey of Korea*).

Conclusion

Korea's economic performance over the past 50 years has been outstanding. However, continuing the convergence to the highest-income countries is increasingly challenging as Korea enters a period of population ageing that is exceptionally rapid while per capita income is still relatively low. In addition, economic policy will have to place greater emphasis on environmental sustainability and achieving inclusive growth to promote social cohesion. Sustaining the convergence process requires labour market and education reforms to limit falls in labour inputs in the face of demographic headwinds. In addition, improving the education system is essential to narrow the productivity gap with leading countries. Developing the service sector – the source of much of the gap – is essential to make the final transition to high-income status. Detailed recommendations are summarised below in Box 1.2.

Box 1.2. **Summary of recommendations to sustain Korea's convergence to the highest-income countries**

Encouraging labour market participation, particularly of women, the elderly and youth

- Encourage better work-life balance, in part by expanding flexibility in working hours and reducing them, lengthening maternity and parental leave and encouraging their take-up by increasing the benefits for parental leave and reserving part of the leave time for the exclusive use of fathers.
- Increase the availability of affordable, high-quality childcare.
- Reduce labour market dualism to create better job opportunities for women and young people.
- Encourage greater use of flexible employment and wage systems to promote the continuous employment of older workers, while expanding and upgrading lifelong learning and training opportunities to improve their job prospects.
- Set a minimum mandatory retirement age and gradually increase it with an aim of eventually abolishing mandatory retirement, while phasing out the retirement allowance by further expanding company pensions.
- Ensure better access to comprehensive employment support programmes to encourage youth to work.

Tax reform to foster employment and growth

- Raise additional revenue to finance rising government spending through the value-added tax, as well as taxes on carbon and property-holding, thereby keeping the tax burden on labour low.

Improving the education system to promote productivity growth

Early childhood education and care

- Raise the proportion of children attending kindergarten by expanding tuition subsidies, especially for low-income children, and increasing the capacity of public kindergarten by including them in primary school buildings.
- Improve the quality of private childcare facilities by upgrading the accreditation process and making it mandatory and relaxing fee ceilings on private childcare, which impinge on quality.
- Upgrade the quality of teachers by increasing the requirements in ECEC.
- Gradually integrate childcare and kindergartens to improve quality, while achieving cost savings.

Primary and secondary schools

- Increase the autonomy of schools and promote closer co-operation between local governments and local educational authorities, with the eventual aim of merging them.
- Expand school choice to encourage schools to excel, while continuing to expand diversity in the type of high schools to promote competition and excellence.
- Develop vocational education by increasing the number of Meister schools and developing National Technical Qualifications (NTQ) that link education and the labour market.

Box 1.2. **Summary of recommendations to sustain Korea's convergence to the highest-income countries** *(cont.)*

Tertiary education

- Increase transparency, including at the department level, while promoting internationalisation by facilitating the entry of foreign students and tertiary institutions in Korea, to enhance competition.
- Develop vocational education by enhancing the role of colleges and linking them to a streamlined set of NTQs.
- Use the rankings, which designate the lower 15% of institutions, to improve management and foster restructuring; incorporate other national universities, in addition to Seoul National University, to promote their autonomy.
- Make an upgraded accreditation system effective, while easing regulations to promote innovation and diversity.

Enhance the role of the education system in innovation

- Expand the role of universities in innovation by strengthening links between research institutes in government, business and academia, in part by promoting labour mobility of researchers.

Raising productivity in the service sector

- Further reduce entry barriers, including in network industries, through regulatory reform, and upgrade competition policy by increasing the deterrent effect of surcharges and criminal penalties to strengthen competition.
- Strengthen international competition in services through greater inflows of direct foreign investment by removing ownership restrictions and improving the business climate.
- Scale back government assistance to SMEs, including subsidies, financial assistance, credit guarantees and tax incentives, to make small companies less dependent on public support and promote their restructuring.
- Comprehensively quantify the various forms of explicit and implicit support to manufacturing as a first step to leveling the playing field.

Notes

1. Local employers unable to find domestic workers are allowed to hire foreign workers, usually for manual jobs, for up to 58 months under the Employment Permit System adopted in 2004.
2. In 2010, eligibility was expanded from an employee whose children are age three or younger to age six or younger. Each parent can take up to one year of leave. A worker taking parental leave receives 40% of his or her salary, of which 15% is paid six months after the return to work.
3. According to the law, "the employer will be required to allow that worker to work shorter hours as long as there is no special managerial reason". In addition, it made the three-day unpaid paternity leave paid, with the possibility of an additional two days of unpaid leave.
4. The Federation of Korean Trade Unions complains that many part-time workers, who typically work six hours a day, are forced to work eight hours with no overtime payments.
5. Hyundai Research Institute (2010). According to a survey taken in the mid-2000s, the average number of children desired by Korean women between the ages of 15 and 54 was 2.2.
6. Standard Chartered's decision to introduce performance-based pay resulted in the longest strike ever in Korea's banking sector. This dispute was eventually settled by the introduction of a very

generous early retirement programme, essentially buying off those with high salaries due to long service.

7. For those who work at SMEs, half of their wages up to 800 000 won ($680) are paid by the government for six months. If they are hired as regular workers at the end of the internship, a subsidy of 650 000 won a month is paid for another six months.

8. One option would be to absorb the private centres into the public sector, but this is opposed by the owners.

9. One study found that the university advancement rate of students in public schools in urban areas is higher in districts allowing school choice, with no negative effect on rural schools (Akabayashi, 2006). Another study found that school choice improved academic results, while between-school differences have not risen (Yoshida *et al*., 2009).

10. The QS World University Ranking is based on six indicators: academic reputation based on a global survey (40%), citations per faculty (20%), faculty-student ratio (20%), employer reputation (10%), proportion of international students (5%) and proportion of international faculty (5%).

11. Students attending schools in the "minimum loan" group can only borrow 30% of their tuition, while those in the "limited loan" group can borrow 70%.

12. However, new students attending the bottom 15% of universities will face restrictions on receiving the new national scholarships that were introduced in 2012 to reduce tuition fees.

13. These include the Shipping & Transportation College from the Netherlands, Friedrich-Alexander University of Germany and Stony Brook of New York State University.

14. This is based on tertiary-type A programmes (ISCED 5A), which are largely theory-based and are designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements, such as medicine, dentistry or architecture.

15. This primarily reflects a decline in the advancement rate from general high schools from 87.9% to 75.2% between 2008 and 2011, while the rate fell from 72.9% to 63.7%, for vocational high schools.

16. The Initiative also set the objective of boosting basic research from 26% of government R&D to 50% by 2012. At the same time, it will focus on seven major technology areas, including cars, shipbuilding, machinery and semiconductors.

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Chapter 2

Achieving the "low carbon, green growth" vision in Korea

Korea, which has had the highest growth rate of greenhouse gas emissions in the OECD area since 1990, adopted an ambitious Green Growth Strategy in 2009. It aims at reducing emissions by 30% by 2020 relative to a "business as usual" scenario, implying a 4% cut from the 2005 level. The Strategy also includes a Five-Year Plan with public spending of 2% of GDP per year to promote green growth. Korea is planning to establish a carbon price through a cap-and-trade emissions trading scheme. Such an approach, combined with a carbon tax in sectors not covered by the scheme, is necessary to reduce emissions in a cost-effective manner and foster innovation in green technology. In addition, each sector should face the same electricity price based on production costs to promote efficient energy use. Given market failures, the government has a role to play in green R&D, particularly for basic research, in fostering green finance and in developing renewable energy resources.

In 2008, Korea's President proclaimed Low Carbon, Green Growth as the nation's vision to guide development during the next 50 years. Since then, the government has established the National Strategy for Green Growth and the Five-Year Plan for Green Growth and has set a target for reducing greenhouse gas emissions (GHG) (Table 2.1). The National Strategy has three main objectives: *i)* effectively dealing with climate change and attaining energy independence; *ii)* creating new engines of economic growth; and *iii)* raising the overall quality of life. Korea's energy intensity is about one-fifth above the OECD average and Korea was the tenth-largest energy consumer in the world. Meeting the emission reduction target of 30% relative to a business-as-usual (BAU) baseline by 2020 will thus be extremely challenging.

Table 2.1. **The development of Korea's Green Growth Strategy**

	Action	Date
Vision	The President proclaims "Low Carbon/Green Growth" as the nation's vision to guide development during the next 50 years	September 2008
	Announcement of the "National Strategy for Green Growth" up to 2050	July 2009
Institutional framework	Establishment of the "Presidential Committee on Green Growth" and its secretariat	January 2009
	Creation of the local green growth committees in each of the 16 metropolitan cities and provinces	November 2009
	Start of the monthly implementation evaluation meetings, chaired by the prime minister	September 2011
Medium-term plan	Launch of the "Five-Year Plan for Green Growth" (2009-13)	July 2009
Emission target	Announcement of a target to reduce greenhouse gas emissions by 30% relative to the BAU baseline by 2020	November 2010
	Setting reduction targets by sector and industry	July 2011
Legal foundation	Enactment of the "Framework Act on Low Carbon, Green Growth"	January 2010
	Submission of a bill to the National Assembly to create an Emission Trading Scheme	April 2011

Source: Presidential Committee on Green Growth.

However, the shift to a green growth paradigm offers a number of benefits to Korea. *First*, it will provide new engines of growth and create jobs for an economy facing rapid population ageing and falling potential growth (Chapter 1). *Second*, it will improve the quality of life by reversing the environmental degradation that accompanied rapid industrialisation. *Third*, it will reduce dependence on energy imports, which account for 86% of Korea's primary energy supply.

The Five-Year Plan (2009-13) contains about 600 projects that cost 108.7 trillion won (10% of 2009 GDP). The major 25 programmes that account for almost three-quarters of total expenditure over the first four years of the programme are shown in Table 2.2. The high level of spending reflects the inclusion of large construction projects, notably the Four Major Rivers Restoration Project and railroad construction, which together account for one-third of total outlays between 2009 and 2012. The Plan also includes the construction of

Table 2.2. **The Five-Year Plan for Green Growth (2009-13)**

Trillion won[1]

	Total	2009	2010	2011	2012	2013
Total[2]	**108.7**	**17.2**	**24.5**	**25.7**	**21.9**	**19.4**
Memorandum item: total R&D in green technology in all categories	*(13.0)*	*(1.9)*	*(2.2)*	*(2.5)*	*(2.8)*	*(3.5)*
I. Adapting to climate change and enhancing energy independence	**60.0**	**8.5**	**15.6**	**16.8**	**11.4**	**7.7**
1. Effective mitigation of greenhouse gas emissions	5.0	1.0	0.9	0.9	0.9	1.3
• *Managing forests*	*2.0*	*0.6*	*0.5*	*0.5*	*0.5*	…
• *Mitigating vehicle emissions*	*0.5*	*0.1*	*0.1*	*0.1*	*0.1*	…
2. Reduce fossil fuel use and enhance energy independence	16.7	2.8	3.8	3.7	3.6	2.8
• *Development of foreign oil fields*	*5.1*	*1.0*	*1.7*	*1.2*	*1.3*	…
• *Promoting renewable energy*	*3.7*	*0.7*	*1.0*	*1.0*	*1.0*	…
• *Nuclear energy development*	*1.8*	*0.3*	*0.4*	*0.5*	*0.6*	…
3. Strengthening the capacity to adapt to climate change	38.3	4.7	10.9	12.2	6.9	3.6
• *Four Major Rivers Restoration Project*	*15.4*	*0.8*	*6.4*	*6.9*	*1.3*	…
• *Improving water quality and sewage management*	*8.6*	*2.1*	*2.1*	*2.3*	*2.2*	…
• *Construction of environment-friendly small dams*	*2.2*	*0.5*	*0.6*	*0.5*	*0.6*	…
II. Securing new growth engines	**22.3**	**3.7**	**4.3**	**4.4**	**4.3**	**5.6**
4. Development of green technologies	7.3	1.4	1.5	1.4	1.4	1.6
• *R&D on energy and natural resources*	*0.8*	*0.2*	*0.2*	*0.2*	*0.2*	…
• *R&D on urban transport*	*0.8*	*0.2*	*0.2*	*0.2*	*0.2*	…
• *R&D on agriculture and fisheries*	*0.5*	*0.1*	*0.1*	*0.1*	*0.1*	…
5. The "greening" of existing industries and promotion of green industries	4.5	0.7	0.9	1.0	0.9	1.0
• *Support for R&D by green SMEs and start-ups*	*0.8*	*0.1*	*0.3*	*0.2*	*0.2*	…
• *Promoting recycling and other environmental industries*	*0.7*	*0.1*	*0.1*	*0.2*	*0.2*	…
• *Promoting environment-friendly agriculture*	*0.4*	*0.1*	*0.1*	*0.1*	*0.1*	…
6. Advancement of industrial structure to increase services	9.0	1.4	1.7	1.7	1.7	2.5
• *Promoting low-carbon broadcasting and telecom*	*1.2*	*0.3*	*0.4*	*0.3*	*0.3*	…
• *Promoting low-carbon materials and parts*	*1.1*	*0.2*	*0.3*	*0.3*	*0.3*	…
• *Promoting low-carbon medicine*	*1.0*	*0.2*	*0.2*	*0.3*	*0.3*	…
7. Engineering a structural basis for the green economy	1.5	0.2	0.2	0.3	0.3	0.5
• *Training human resources for the green economy*	*0.5*	*0.1*	*0.1*	*0.1*	*0.1*	…
• *Energy welfare*	*0.3*	*0.1*	*0.1*	*0.1*	*0.1*	…
III. Improving living standards and enhancing national status	**26.4**	**5.0**	**4.6**	**4.5**	**6.2**	**6.1**
8. Greening land and water and building green infrastructure	24.0	4.6	4.2	4.0	5.7	5.5
• *Construction of railways*	*12.9*	*3.0*	*3.0*	*2.8*	*4.0*	…
• *Managing streams and rivers*	*3.2*	*0.9*	*0.7*	*0.7*	*0.9*	…
9. Bringing the green revolution to daily lives	1.6	0.3	0.3	0.3	0.3	0.4
• *Developing green villages*	*1.0*	*0.3*	*0.3*	*0.2*	*0.2*	…
• *Promoting green campaigns*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	…
10. Becoming an international role model for green growth	0.7	0.1	0.1	0.2	0.2	0.1
• *Green Official Development Assistance, etc.*	*0.6*	*0.1*	*0.1*	*0.2*	*0.2*	…
• *International co-operation on forests*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	…

1. Actual budgets for 2009-11 and plans for 2012-13. It includes 8.5 trillion won of investment by public enterprises.
2. For the individual programmes, the total is the sum of spending during 2009-11 and the budget plan for 2012.

Source: Ministry of Strategy and Finance and Presidential Committee on Green Growth.

Songdo City on a man-made island 56 kilometres west of Seoul. The city, which is expected to reach 65 000 inhabitants by 2016, aims to limit its GHG emissions only one-third of most cities that size (OECD, 2012). In contrast, R&D spending is limited to 11% of the Plan's outlays over that period. In addition, each of Korea's 16 provinces and metropolitan cities has a "Green Growth Execution Plan". For example, Daejon province has a goal of planting 30 million trees, while Seoul is introducing electric buses (NRCEHSS, 2011). The government estimates that the Five-Year Plan will induce production worth around 20% of 2009 GDP and boost employment by as much as 10% by 2013, suggesting a relatively high

fiscal multiplier of around two. However, the shift to a green growth paradigm requires changing production processes, consumption patterns and industrial structures, entailing large transition costs.

Following up on the green growth chapter in the 2010 *OECD Economic Survey of Korea*, this chapter focuses on the three objectives of the National Strategy – mitigating climate change, creating new engines of growth and enhancing the quality of life. Progress in implementing the recommendations in the 2010 *Survey*, as well as new policy recommendations in this chapter, are summarised at the end in Table 2.9.

Mitigating climate change

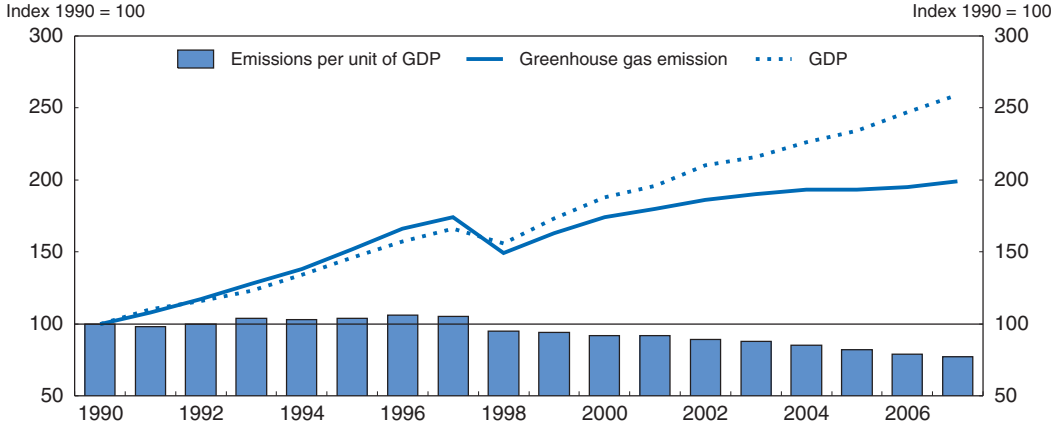
The government estimates that GHG emissions would rise by one-third by 2020 under a business-as-usual (BAU) scenario. The projected emission growth varies widely by sector, ranging from 45% in manufacturing to declines in primary industries and garbage disposal. In 2011, the government set reduction targets by sector and industry to achieve its overall target of cutting emissions by 30%, which implies a 4% cut from the 2005 level. The targeted reduction is relatively small compared to the 2020 targets for Japan (30%), the United States (17%) and the EU (13%). However, 30% relative to a BAU baseline is the maximum recommended by the Inter-governmental Panel on Climate Change for non-Annex 1 countries.[1]

Overview of energy use and GHG emission trends in Korea

The doubling in GHG emissions between 1990 and 2008 far outstripped the global increase of 27% over that period. Nevertheless, Korea has achieved a partial decoupling of emissions and GDP growth since the 1997 Asian financial crisis. Indeed, the ratio of emissions to GDP fell by more than a quarter by 2007 (Figure 2.1), thanks to the manufacturing sector, which accounts for more than half of Korea's GHG emissions. Between 1998 and 2007, manufacturing output doubled while emissions rose by one-third, reflecting two factors (Table 2.3). *First*, an improvement in energy efficiency reduced emissions per unit of output by 30%. *Second*, a shift in the industrial structure away from energy-intensive activities cut emissions another 13%.

Figure 2.1. **Trends in GHG emissions and GDP in Korea**

1990=100



Source: OECD Environment Database and *OECD Analytical Database*.

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Table 2.3. **Analysis of GHG emissions increase in Korea**

The manufacturing sector, 1991 = 100

	Production effect	Industrial structural effect[1]	Energy efficiency effect[2]	Energy mix effect[3]	Emissions coefficient effect[4]	Total
1998	152.5	97.2	105.6	100.2	94.9	148.9
2007	312.0	84.1	73.6	103.9	101.9	204.5

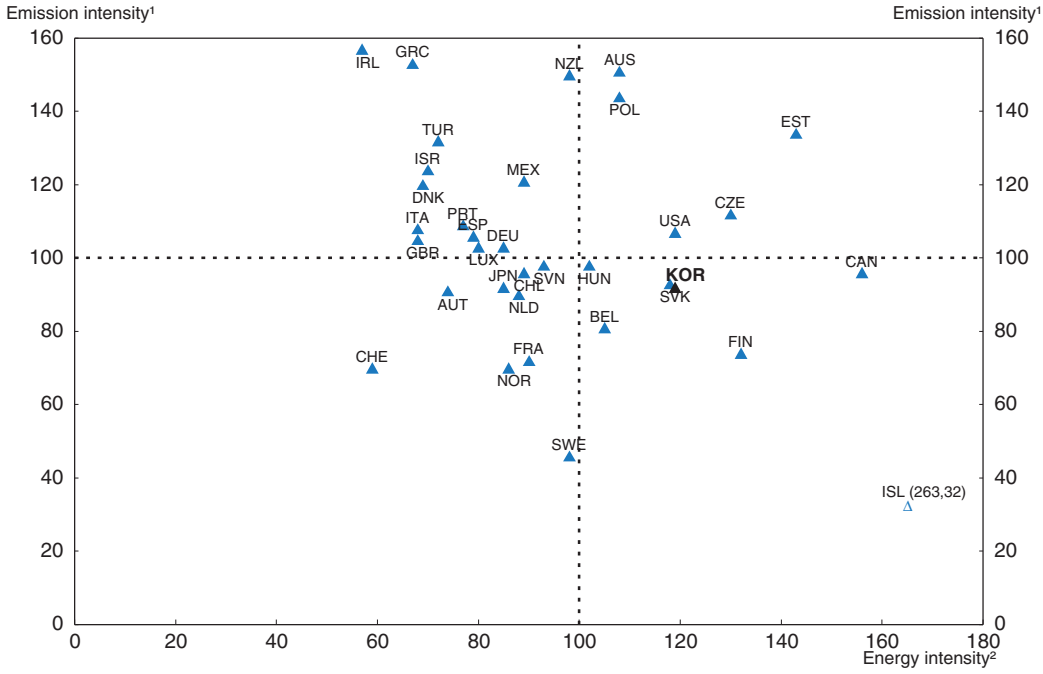
1. Change in total energy consumption caused by the sum of the changes of each industry's share in total manufacturing.
2. The change in energy per unit of output.
3. The impact of changes in the composition of energy inputs by industry.
4. The carbon content per unit of energy source.

Source: Kim and Jeong (2010).

Nevertheless, Korea's energy intensity in 2007 was 19% above the OECD average and the sixth highest in the OECD area (Figure 2.2). Energy-intensive industries, such as steel and petro-chemicals, accounted for 12% of total value-added in Korea in 2008, the highest in the OECD area. While per capita energy use in the transport, residential and commercial sectors was below the OECD average, it was almost 50% above the OECD average in industry. Meanwhile, the share of the service sector in GDP in Korea is the second lowest in the OECD area. Energy intensity in services in Korea is less than one-third of that of manufacturing. Developing the service sector would thus reduce GHG emissions,[2] while

Figure 2.2. **The energy intensity of the economy is high, while emission intensity is about average**

Unweighted OECD average = 100 in 2007



1. Emission intensity is defined as GHG emissions, excluding land-use, land-use change and forestry, divided by total primary energy supply (TPES). It is expressed in tonnes of oil equivalent.
2. Energy intensity is measured by TPES (in tonnes of oil equivalent) divided by GDP (in thousand 2000 USD using PPPs).

Source: OECD World Energy Balances Database, United Nations Framework Convention on Climate Change Database and the Korean Ministry of Environment.

StatLink http://dx.doi.org/10.1787/888932592869

helping to achieve the government's target of cutting energy intensity by one-third from the 2005 level by 2020.

In contrast to its high energy intensity, emissions per unit of energy in Korea were slightly less than the OECD average in 2007 (Figure 2.2), thanks in part to nuclear energy. Indeed, Korea was the fourth-largest nuclear energy producer in the OECD area and it accounted for 17% of its total energy production. The government plans to increase its share to 28% by 2030. However, nuclear energy is associated with environmental risks and unsolved waste management issues. The government established the Nuclear Power Safety Committee as an independent organisation under the President in 2011 to upgrade supervision. Ensuring the independence of the Committee and its leadership is essential to maintain confidence in nuclear power, especially in the wake of the disaster at Fukushima, Japan in 2011.

Creating a clear price for carbon through market-based instruments

Korea's 2020 target implies that the GHG emission-to-GDP ratio would have to fall by another 44%, *i.e.* to less than half of its 1990 level. This calls for an appropriate policy framework that promotes cost-effective industrial restructuring. The key is greater reliance on market instruments, which equalise marginal abatement costs across emitters, thereby promoting cost-effective emission abatement. The main market instruments for internalising the social cost of carbon are an emissions trading scheme (ETS) and a carbon tax, which both put a price on carbon. A recent study concluded that achieving Korea's 2020 emission target through an ETS would cost only 40% as much as relying on direct regulations (Lee, 2009). Furthermore, a carbon price is needed as soon as possible to kick-start private investment and innovation in greener infrastructure and technologies. Both options for carbon pricing meet the efficiency criteria, as they encourage emitters to adopt the least expensive abatement solutions that cost less than the permit price or the tax. A major difference between the two instruments is that under a carbon tax, the price of carbon is fixed and the amount of emissions is uncertain, whereas under an ETS, the amount of emissions is fixed while the carbon price fluctuates. In practice, however, given that carbon tax rates would have to change over time to ensure that the emission targets are met, the two instruments are essentially equivalent, if properly designed and implemented. Auctioning emission permits generates revenues, as does a carbon tax. Conversely, granting permits is equivalent to recycling carbon-tax revenue to polluters.

Although an ETS has steep start-up costs and comes with carbon price volatility, it has a better chance of being defended by stakeholders once it is in place (OECD, 2011f). The participation of firms in the ETS creates a constituency for maintaining the system, though the authorities need to ensure that they do not impair competition by favouring existing firms, while avoiding speculation and fraud, which reduce the environmental benefits (OECD, 2011f). An ETS also has the potential to create linkages with foreign carbon markets, which could lower the cost of reducing emissions and lead to a common regional or world carbon price that would help level the playing field for energy-intensive firms, thereby helping to alleviate concerns about international competitiveness (OECD, 2010a).

The government introduced legislation in April 2011 to create a cap-and-trade ETS in 2015 covering six types of GHGs. The first step is the creation of a "Target Management System" (TMS), which requires firms emitting more than 15 thousand tonnes annually to set targets with the government beginning in 2012. Firms emitting over 25 thousand tonnes, a threshold that included 497 firms in 2011 accounting for around 60% of total emissions, will join the ETS in 2015. Less than 5% of the permits may be auctioned in the

first (2015-17) and second phases (2018-20). The system for allocating the remainder of the permits is yet to be decided. Firms with 15 to 25 thousand tonnes of emissions can enter the ETS or remain in the TMS after 2015. Firms that fail to meet their objectives in the TMS will be subject to fines. The legislation was approved by a National Assembly subcommittee in February 2012, preparing the way for its consideration by the legislature before its term ends in May 2012.

The business sector remains critical of this plan. *First*, it argues that the ETS would weaken the international competitiveness of domestic industries, given that competitors in neighbouring countries do not face similar burdens. *Second*, it is concerned that the number of firms in the ETS is so small as to create the risk of considerable price instability for permits. *Third*, it argues that Korea's manufacturing sector is already energy-efficient and thus should not be required to make large emission reductions.

International competitiveness issues

The overall economic cost and competitiveness issues arising from pricing emissions are likely to have only a small impact on output growth. Nevertheless, to cope with the "carbon leakage" problem, most countries with carbon pricing protect domestic industries using a variety of methods against rivals that do not face such systems. Korea's legislation to establish an ETS would allow the government to assist firms subject to negative effects from carbon leakage by providing loans, subsidies or tax deductions that defray the cost of installing GHG reduction facilities and performing green R&D. Although transitional assistance to some strongly affected industries may be appropriate, the cost of such support could be significant and needs to be carefully measured against other potential uses of government revenue. Overly generous support to maintain current production patterns would slow the transition to sustainable low-carbon technologies. It is important to provide a clear signal that they will be phased out over time (IEA/OECD, 2010).

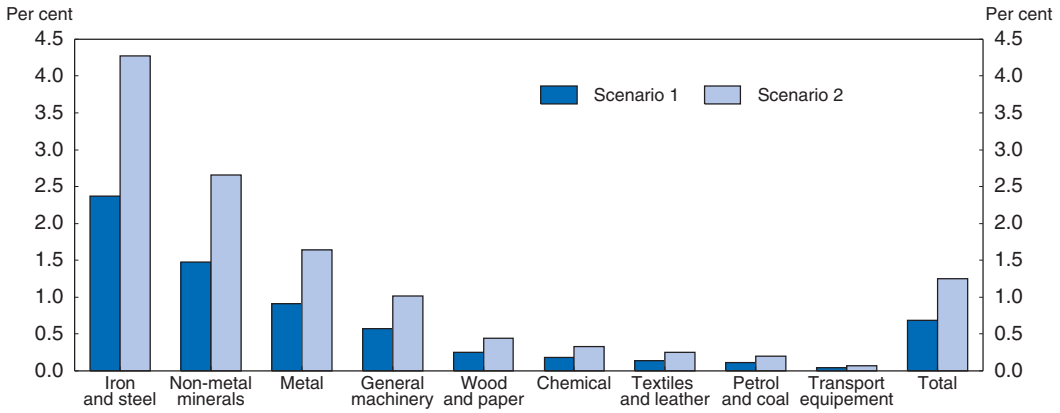
Carbon leakage from an individual country depends on the extent of climate change measures adopted by other countries. An OECD study (OECD, 2009) found that if the EU were to unilaterally cut emissions by 50% by 2050, around 12% of its reductions would be offset by increased emissions elsewhere. However, if all developed countries were to act, the leakage rate would be reduced to only 2%. A study that simulates the introduction of an ETS in Korea finds that it would reduce turnover by 0.7% to 1.3% on average in nine major energy-intensive industries (Figure 2.3), which account for about half of the total turnover in manufacturing (Lee, 2011b).[3] Given that manufacturing turnover has risen at an annual rate of around 8% during the past decade, the impact would appear limited. However, the decline in turnover would be concentrated in particular industries, such as pig iron, where it could reach as high as 16% (Lee, 2011b). Measures to alleviate the impact in some seriously-affected industries would thus be needed. But it is very important not to exclude energy-intensive industries from climate change mitigation policies as that would increase the cost of achieving emission reductions (OECD, 2009).

Volatility of permit prices

Permit prices vary with changing demand, reflecting such factors as fluctuations in energy prices, economic growth and weather conditions (Webster *et al.*, 2008). In schemes implemented to date, there has been a tendency for caps to be set too high in the initial stages of trading, resulting in the collapse of carbon prices, as occurred in the EU's ETS. In addition, estimation mistakes or unforeseen changes in Korea's BAU baseline could have a

Figure 2.3. **The estimated decline in sales in Korea following the introduction of an ETS**

In nine energy-intensive industries that account for half of manufacturing output[1]



1. Scenario 1 assumes a price of $22 per tonne of GHG emissions and Scenario 2 a price of $40.
Source: Lee (2011b).

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dramatic effect on permit prices. Many governments have tended to overestimate emission trends, reflecting a lack of historical data on emissions, over-optimistic forecasts of baseline GDP growth, unanticipated changes in fuel prices and a tendency to underestimate the potential for abatement and innovation (IEA/OECD, 2010).

One remedy to reduce volatility in permit prices is to allow their banking for future use. For example, if the ETS includes a credible pathway with strict targets in the future, permits that are "surplus" today will still have value. This was the case in the EU ETS, where despite an expected surplus during 2008-12, allowances traded around €10 in anticipation of tighter targets announced for 2013-20, although the price has fallen recently. The bill to establish a Korean ETS would allow permits to be banked during the first phase for subsequent phases. The borrowing of permits has a similar stabilising effect, although there is a need for caution as firms do go bankrupt. While allowing firms to smooth their emission profiles through the business cycle by banking and borrowing permits helps to limit price volatility, it must be accompanied by adequate compliance mechanisms and long-term targets to be effective. For instance, if future emission caps are not adjusted to take account of the excess supply of permits, carrying forward excess permits would reduce the need for emission reductions in the future.

A long-run solution to reduce both overall costs and volatility is to link the Korean ETS to other carbon markets, thereby allowing the export and import of permits. In practice, such links will be possible only among schemes that have similar caps, rules and offset provisions (Dellink *et al.*, 2010). However, even without direct linking there is likely to be some convergence of permit prices if common offsets are allowed. For example, most schemes currently accept Kyoto Protocol Clean Development Mechanism permits, whose value is driven by permit prices in the EU ETS, thus linking them to the European market. The Korean ETS bill also allows offsets, with the conditions to be determined later.

High level of energy efficiency in manufacturing

A number of studies show that Korea's energy efficiency in manufacturing is high compared to other countries,[4] suggesting less scope for cutting emissions. However, this

factor was taken into account in setting the 2020 GHG emission reduction target. As noted, manufacturing emissions increase by 45% in the BAU scenario, compared to 33% for the country as a whole. In addition, the reduction from the BAU scenario, which is based on the availability of abatement technologies, reduction potential and competitive conditions, is only 18% in manufacturing, well below the 30% overall reduction target. Consequently, manufacturing is the only one of the six sectors where the emissions target for 2020 is larger than actual emissions in 2007. In particular, steel, petro-chemicals and cement have reduction targets ranging between 8% and 11%, which do not appear challenging, as one study estimated the targets could be met using existing technology (Lee and Choi, 2010).

Conclusion: an ETS with auctioning of permits should be the key priority

Putting a price on carbon, primarily through a mandatory cap-and-trade ETS, should be the first priority for climate change mitigation and green growth. Although there may be good arguments for measures to minimise the negative impacts on some industries, they should not be an excuse to delay the introduction of an ETS beyond 2015. In addition, the ETS should quickly shift from the allocation of permits by the government, which provides scope for windfall profits for existing firms, resulting in potentially unfair competition for new entrants, to the auctioning of permits. Auctioning is more efficient as it generates revenue that can be used *inter alia* to offset the impact of the ETS on firms and consumers, fund green investments, reduce more-distorting taxes or achieve fiscal consolidation.

If the ETS is limited to large emitters, a carbon tax should be applied to smaller and more diffuse sources of pollution, such as households, farmers, small businesses, transport and the commercial sector.[5] The government is currently considering such a tax. It is important, though, to minimise overlap and complicated interactions between an ETS and a carbon tax that would raise uncertainty about the overall outcome (OECD, 2006c). In particular, the two instruments should be set to minimise differences in the explicit and implicit carbon prices across sectors (de Serres *et al*., 2010). For example, while Korea taxes fuel used for transport, heating and industrial processes, it provides a substantial tax exemption for fuel used in agriculture and fisheries that amounted to more than 2.8 trillion won (0.2% of GDP) in 2010 (OECD, 2011d). To ensure adequate incentives to reduce emissions in all sectors, this provision should be reviewed. Moreover, while Korea's decision to end budgetary support for coal production and rationalise support for briquette production is laudatory, greening growth requires ensuring that there is a positive price on emissions from the combustion of coal in sectors not covered by the planned ETS.

The taxation of transport fuels also should be re-examined, given that diesel is taxed less heavily than gasoline, even though emissions of both carbon dioxide and air pollutants are higher from a litre of diesel than a litre of gasoline. Moreover, the earmarking of environmental taxes, including the transport-environment-energy tax on gasoline and diesel, for road construction, should be ended. At present, 80% of the revenue is earmarked for transport infrastructure, primarily roads, thus encouraging GHG emissions. Once an ETS and carbon tax are in place, the TMS, which will apply to firms with 15 to 25 thousand tonnes of emissions after 2015, should be phased out.

A clear price signal is a necessary, though not always sufficient, condition for efficiency, given a number of market failures resulting from externalities related to investment in knowledge, information asymmetries and market imperfections, including in capital markets. Such market failures justify complementing market-based mechanisms with other instruments. However, the use of overlapping instruments is

generally costly and, therefore, non-market-based instruments should be used only when there is a market failure that cannot be fully addressed by a carbon price. Such alternative policies cannot succeed without some form of carbon pricing (OECD, 2009).

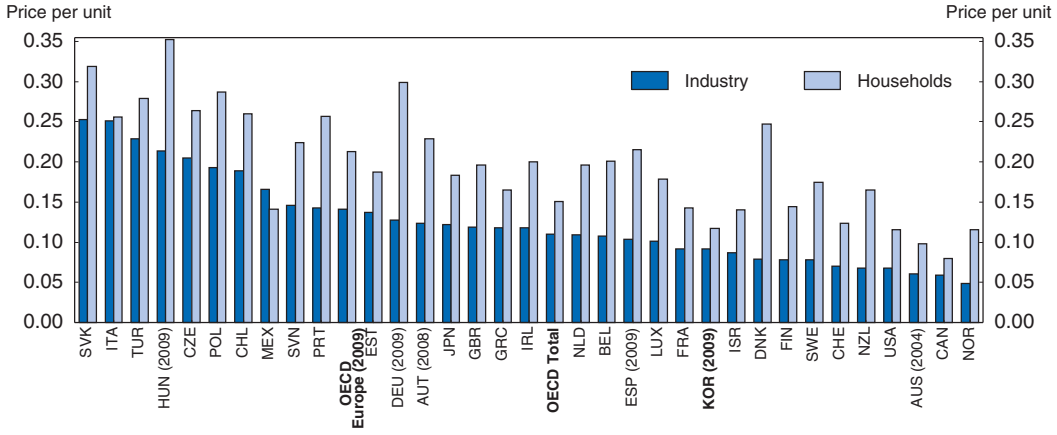
Convincing the public to bear the cost today of fundamentally changing what is produced and how it is produced for uncertain benefits that are spread unevenly across generations and across countries is a difficult challenge. The indispensable policy tool – a price on carbon – is unpopular politically. A number of countries have recently backed down from measures to introduce or extend the use of pricing instruments and are instead relying on regulations and subsidies. It is important to communicate clearly the higher cost of second-best solutions (de Serres *et al.*, 2011). For example, the cost of subsidies to ethanol and biodiesel by the EU to reduce CO_2 equivalent by one tonne is estimated to be at least $700 and $250, respectively (Steenblik, 2007). To gain public support, the Korean authorities have emphasised the economic benefits of green growth and the scope for improving the quality of life by reducing GHG emissions. These two topics are discussed later in this chapter.

Reforming electricity pricing

The government regulates electricity prices on the grounds that their network structure is monopolistic. However, this has not improved efficiency, as the government's pricing policy tends to focus on macroeconomic objectives, such as price stabilisation and strengthening the international competitiveness of manufacturing (Jhung and Park, 2010). Korea's electricity prices for industry and households are a little less than the OECD average and much lower than European countries on the basis of PPP exchange rates (Figure 2.4) – and one of the lowest in the OECD based on market exchange rates. Furthermore, its electricity price is exceptionally low relative to that of oil (Table 2.4). Against this backdrop, Korea faces electricity shortages, which forced rolling blackouts in Seoul in 2010.

Figure 2.4. **Electricity prices in OECD countries in 2010**

Prices per kWh using PPP exchange rates



Source: IEA/OECD Energy Prices and Tax Database.

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The low electricity price is an environmentally-harmful subsidy that boosts electricity consumption and GHG emissions and promotes an energy-intensive industrial structure.

Table 2.4. **International comparison of electricity price trends in the industrial sector**

Relative to light fuel oil price (each year's oil price = 100)[1]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Korea	**88**	**88**	**88**	**77**	**65**	**57**	**54**	**57**	**44**	**63**
Japan	481	467	454	413	364	269	226	219	163	301
USA	210	261	272	229	184	139	132	121	98	162
OECD Europe	151	182	191	195	177	153	158	161	142	203
OECD	207	239	243	223	200	160	155	155	131	201

1. Index is calculated by using electricity and oil prices per tonne of oil equivalent.
Source: IEA/OECD Energy Prices and Tax Database.

As a result, electricity consumption per unit of GDP in Korea in 2009 was 1.7 times higher than the OECD average. The overall recovery rate – the unit price as a share of the total unit cost – was 90.2% in 2010 and the price varies widely between sectors, creating significant cross-subsidies between consumers (Table 2.5). The recovery rate in the general category, which includes services, was 96.3%, compared to 89.4% in industry and only 36.7% in agriculture. Although the gap between some sectors has narrowed in recent years, the overall recovery rate has fallen from 93.8% in 2007 to 90.2%, indicating that electricity prices still do not cover costs. The government should raise electricity prices by replacing the sector-based price structure with a system based on voltages, which would effectively reflect production costs. Such an approach would be in line with the 2008 National Energy Master Plan, which called for abolishing cross-sector subsidies.

Table 2.5. **Recovery rate of electricity price by sector in 2010**

	Average	General	Residential	Industrial	Educational	Agricultural
Unit price (won/kWh)	86.8	98.9	119.9	76.6	87.2	42.5
Total unit cost(won/kWh)	96.3	102.7	127.2	85.7	103.1	116.0
Recovery rate in 2010 (%)	90.2	96.3	94.2	89.4	84.6	36.7
Recovery rate in 2007 (%)	93.8	108.4	99.2	90.5	88.7	39.2

Source: The Government of Korea (2008) and Jhung and Park (2010).

Developing renewable energy

The electricity pricing policy also hinders the development of renewables, which are essential to reduce GHG emissions and promote green growth. Korea has promoted renewables through a Feed-In-Tariff (FIT) system, which guarantees their price through subsidies equal to the difference between the generation cost and the market price. Following the introduction of the FIT in 2002, the share of renewables in total primary energy supply (TPES) increased from 1.4% to 2.6% in 2010, leading to a large increase in the number of firms in this sector and their exports. A FIT reduces the uncertainty of investment, even for smaller generators, by guaranteeing the price, making it an effective instrument to rapidly expand renewables. Nevertheless, according to the OECD definition,[6] the share of renewable energy in TPES in Korea was only 0.7% in 2010, still far below the OECD average of 7.6%.

The government replaced the FIT in January 2012 with a Renewable Portfolio Standard (RPS), which obliges electricity companies to produce or buy a specified share of their electricity from renewable sources. The RPS target for renewables is 2% of total electricity

supply in 2012, rising to 10% by 2022, compared to only 1.3% in 2010. The target appears feasible, given Korea's large potential in solar photovoltaics and offshore wind (IEA/OECD, 2008).

Under the RPS, producers of electricity from renewables receive certificates based on kilowatt-hours (kWh) of electricity produced, thereby creating a supply of certificates. The number of certificates allocated per kWh varies between sources based on generation costs, the expected impact on renewable technologies, and the environmental effect. For example, offshore wind is worth two certificates per kWh, compared to only 0.25 for "Integrated Gasification Combined Cycle". However, there is still debate over the appropriate size of the coefficients. Electricity companies need to purchase certificates when their direct production or purchases of renewables falls short of the specified share, thereby generating demand for certificates. The RPS thus creates a market, with the price of certificates depending on supply and demand and, in turn, on the size of the quota obligation.

Empirical studies on this issue do not provide clear conclusions on which approach is best.[7] No "one-size-fits-all" approach meets all policy objectives. The government offered three reasons for shifting from the FIT, a price-based instrument, to a RPS, a quantity-based instrument. *First*, it promotes competition in renewables. *Second*, it reduces the financial burden on the government as it no longer has to provide subsidies. *Third*, it makes it easier to project future supply capacity. In addition, empirical analysis shows that a RPS has a larger impact on innovation in renewables (Johnstone *et al.*, 2010b).

However, there is a risk that a RPS, a quantity-based system, will result in excessive use of low-quality renewables, in terms of their generation costs, the expected impact on renewable technologies, and the environmental effect. To reduce this risk, Korea applies different weights to certificates between renewable sources, as noted above. Nevertheless, the government needs to closely monitor technological developments in the renewables market. In addition, potential suppliers of renewable energy face more risk in the RPS system, where permit prices tend to be volatile, than in a FIT system, which guarantees the price they will receive. But many of these risks reflect the absence of long-term contracts and are not intrinsic to the RPS (Mitchell, 2006). Tradable certificate systems tend to be more effective in promoting renewable energy if they use long-term contracts, thus reducing the risk associated with the short-run volatility of certificate prices (Agnolucci, 2007). In renewables, as in other green areas, clear and consistent policies over the long term are needed to promote private investment (Croce *et al.*, 2011).

Creating new engines for growth

Green growth means fostering economic growth while ensuring that natural assets continue to provide the resources and natural environment on which well-being depends. This requires effectively using the large-scale expenditures in the Five-Year Plan and other policies to promote green investment and innovation that will underpin sustained growth and give rise to new economic opportunities. A shift to a green growth paradigm requires a framework that provides adequate incentives for greener behaviour by firms and consumers, thereby helping to jump-start the creation of new businesses and innovation (OECD, 2011f). Korean firms have been increasing investment in green industry. According to a government survey, investment by the top 30 business groups was three times higher in 2010 than in 2008 and amounted to 15 trillion won over the three-year period (1.5% of

2009 GDP). The major investment areas included renewable energy (39%), next-generation electric equipment (26%) and green cars (16%). By 2010, Korea was the world's second-largest producer of lithium rechargeable batteries and LED devices. The top business groups plan to invest an additional 22 trillion won during 2011-13, focusing on renewable energy (44%), green cars (24%) and next-generation electronic equipment (19%). However, it is still too early to assess the impact of the Green Growth Strategy on economic growth.

Green financing: channelling funds to green business

Access to finance is one of the key constraints on private-sector investment in green businesses and innovation at an early stage of commercial development. In particular, start-up firms can play a crucial role by exploiting opportunities ignored by incumbent firms. Financing such long-term projects through traditional mechanisms is difficult due to risks, such as information asymmetries. It takes time for markets to price such risks accurately (OECD, 2011b), making it important to improve access to financing by ensuring a legal foundation, a well-functioning certification system to determine which firms deserve green financing, and financing tools (Kim, 2011). Korea's 2010 Framework Act sets the legal foundation and requires the government to establish financial tools by developing new products, providing direct financial support for green enterprises and encouraging private investment in green infrastructure projects.

A well-functioning certification system to determine which firms are truly green is essential. Korea's certification system is run by the Green Certification Committee, which determines which technologies, projects and firms qualify based on an evaluation by the Korea Institute of Advancement of Technology. By October 2011, 456 technologies and 12 projects had been certified (Table 2.6). In addition, firms in which certified green technologies account for more than 30% of sales can be certified as green firms. Only 57 firms had qualified by October 2011, given that it takes time to reach the 30% threshold. The Small and Medium Business Administration also grants green venture certificates under its venture certification system. The number of such certificates increased from 1 133 (7.4% of all venture businesses in 2008) to 1 785 in 2010 (9.5%) (Young, 2011). Venture businesses receive a variety of benefits, including generous tax incentives and equity guarantees (OECD, 2005).

Table 2.6. **Requests by firms for green certification**

Request for:	Applications	Examining documents	Evaluation underway	Certified	Rejected
Green technology certification	1 130	357	124	456	193
Green project certification	93	62	3	12	16
Green firm certification	86	24	3	57	2
Total	**1 309**	**443**	**130**	**525**	**211**
Per cent of total	100.0	33.8	9.9	40.1	16.1

Source: Presidential Committee on Green Growth.

The government is using various channels to supply money to green businesses. Because of the high risk of green finance and its long investment horizon, credit guarantees are used to activate green lending. During the first half of the Five-Year Plan (2009 to mid-2011), credit guarantees of 14 trillion won (1.3% of 2009 GDP) were provided to green industries by two public institutions (Table 2.7), the Korea Credit Guarantee Fund (KODIT) and the Korea Technology Finance Corporation (KOTEC). Green industries thus

Table 2.7. **Green financing in Korea**

Billion won[1]

		2009	2010	First half of 2011	Total
Guarantees	KODIT	1 662	1 820	1 475	4 957
	KOTEC	2 624	3 612	2 931	9 167
	Sub-total	4 286	5 432	4 406	14 124
Bank loans[2]		5 292	8 009	4 381	17 682
Venture capital		367	527	337	1 231
(Number of firms)		215	243	133	591

1. Most of the guarantees and lending from state-owned banks are not included in the Five-Year Plan (Table 2.2).
2. Outstanding loans in June 2011 amounted to 16.5 trillion won or 93% of the loans made over that period.

Source: Presidential Committee on Green Growth.

account for a significant share of the 62 trillion won in outstanding guarantees, which are primarily given to small and medium-sized enterprises (SMEs). The large share reflects the priority given to green industries in deciding which loans to guarantee. In addition, the ceiling on the amount guaranteed is higher for green loans at 7 billion won ($6.2 million), compared to 3 billion won for non-green loans, and the fee for the guarantees is lower.

Total bank loans to green industries amounted to 17.7 trillion won between 2009 and mid-2011 (Table 2.7), almost 2% of banks' corporate lending. Three-quarters of the loans were provided by state-owned banks, such as the Korea Finance Corporation and the Korea EXIM Bank. Evidence from OECD countries shows no significant correlation between public financing and the amount of private financing of innovative green growth ventures (Criscuolo and Menon, 2012). Greater reliance on lending by commercial banks would improve screening and monitoring of each firm. In addition, the 14 trillion won in loan guarantees noted above covers almost 80% of lending to green industries. For most loans, 85% is guaranteed but the ratio is raised to 90% in the case of green loans. The high share that is guaranteed weakens banks' incentives to screen and monitor credit risks.

The capital market is an important source for green financing, particularly through venture capital investment,[8] given the immaturity of green firms and the greater perceived commercial risk. Investment in green industries through the venture capital market nearly doubled between 2009 and 2011, reaching 1.2 trillion won (0.1% of GDP) in 591 companies (Table 2.7), accounting for around half of total venture capital investment in Korea. Well-functioning venture capital markets and the securitisation of innovation-related intellectual property are key sources of finance for green start-ups and need to be developed further (OECD, 2011f). The financing of green start-ups is hindered by the long timeframe to develop such projects, which tends to be longer than the average life of a venture capital fund (Criscuolo and Menon, 2012). The government is mobilising public funds, which had invested 470 billion won in 83 green firms by mid-2011.

In sum, public financing would be better channeled through existing market-based systems and commercial institutions, rather than relying on state-owned banks and public funds (OECD, 2011f). Granting green certificates to certain firms and technologies should be done carefully, while minimising the risk of technological lock-in and lack of competition. Compared with the surge in venture business certificates during the information technology bubble in the early 2000s, the expansion of green certificates is more gradual, as it is high risk and less easy to duplicate and deploy than IT technology, thus alleviating concerns of another bubble (Lee, 2011a). While private investment matures, government policies to provide green financing and certification should advance cautiously, as policies

that "pick winners" are inherently risky given the pace of innovative change and create the risk of locking Korea into a less desirable pathway.

Promoting green innovation and private investment

Innovation is an important driver of the transition to a green economy, as it develops the technologies essential to create new growth engines and jobs. The first priority, as stressed above, is to put a price on carbon to encourage green innovation. Clear and consistent price signals are needed to demonstrate the government's commitment to green growth. However, carbon pricing alone is not enough, as recent experience suggests that it does not overcome the market failures that hinder innovation, notably the difficulty for firms to fully realise the returns to their investment (OECD, 2011c). As noted above, these market failures are more prevalent in green innovation, given the high degree of uncertainty, long timescales and high fixed costs of dominant technologies (UK Committee on Climate Change, 2010). Consequently, public investment in R&D and measures to promote private R&D are needed.

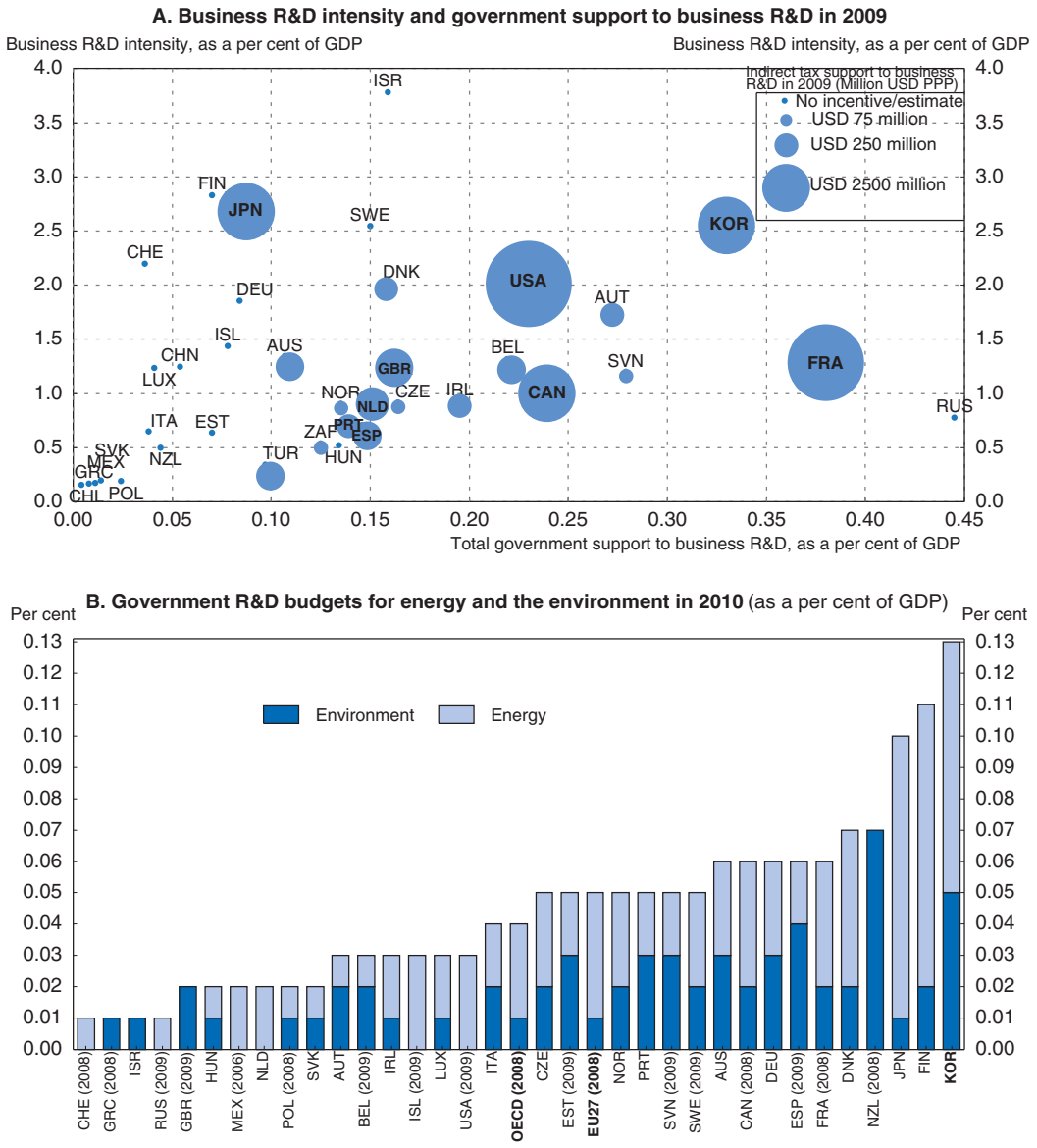
Korea had the third-highest R&D intensity in the OECD area in 2009 with spending of 3.6% of GDP, well above the OECD average of 2.4%. The share of the business sector in R&D is also the fourth highest at 2.5% of GDP (Figure 2.5), financing around three-quarters of total R&D investment in Korea. Business R&D is supported by the government through R&D tax credits and allowances, tax reductions for the wages of R&D workers and accelerated depreciation of capital used for R&D. Total support amounted to 0.3% of GDP, the second highest in the OECD area after France.

In addition, government R&D spending, at 1.0% of GDP, exceeds the OECD average of 0.75%. For public investment in green technologies (defined as energy and the environment), Korea ranked highest in the OECD area as a share of GDP in 2010 (Figure 2.5, Panel B). According to the Five-Year Plan, the government will expand its green R&D from 2 trillion won in 2009 to 3.5 trillion won by 2013 (Table 2.2), for a five-year total of 13 trillion won (1.5% of 2009 GDP). Consequently, green R&D would rise from 16% of the government's total R&D spending in 2009 to 20% by 2013.

Three-quarters of the public investment is to be allocated to the 27 core green technologies selected by the government in 2009 (Table 2.8). In 2011, the government assessed progress in these technologies, based on patent data and appraisal by experts. It found that Korea's overall level of technology had increased from about one-half of the most advanced countries in 2009 to around two-thirds in 2011. In six technologies, including CO_2 capture and storage, smart grid and green cars, the gap had been reduced by more than 20 percentage points. Moreover, five technologies, including LED and green IT, silicon-based solar cells and light-water reactors, reached at least 80% of the cutting-edge technologies in advanced countries. The government is revising the roadmap for green technology development in 2012. Pursuing stable and consistent green growth policies is essential, as this has been found to promote patent applications in environmental technologies in OECD countries (Johnstone, *et al.*, 2010a).

More than half of total public R&D outlays in green technology were for experimental development research (Figure 2.6), with about 60% of it being performed in private firms. However, OECD research suggests that public R&D investment should focus on basic research, where social returns and spillover effects are potentially the greatest (OECD, 2011c). In 2009, only 20% of public investment was in basic research, although this

Figure 2.5. **R&D spending and green technologies**



Source: OECD (2011e), *OECD Science, Technology and Industry Scoreboard 2011.*

StatLink http://dx.doi.org/10.1787/888932592926

was up from 15% in 2008. The government should follow through on its plan to raise its share to 35% in 2012, given that such research has a public good character and is unlikely to be undertaken by private firms. Regarding more commercially-oriented research, public investment should focus on general-purpose technologies and infrastructure to avoid picking winners and aim at technology neutrality (OECD, 2011c).[9]

Given that core technology development requires expertise in a range of engineering and scientific fields (KISTEP, 2010), co-operation and linkages are critical to achieve breakthroughs. It is thus encouraging that more than three-quarters of the 4 732 projects carried out in 2009 involved co-operation between government, university and business research institutes. Moreover, private firms were involved in 63% of the projects, although their financial contributions amounted to only 8% of the total, meaning that the projects

Table 2.8. **Level of technology in the 27 core green technologies**

As a per cent of the most advanced countries in 2011

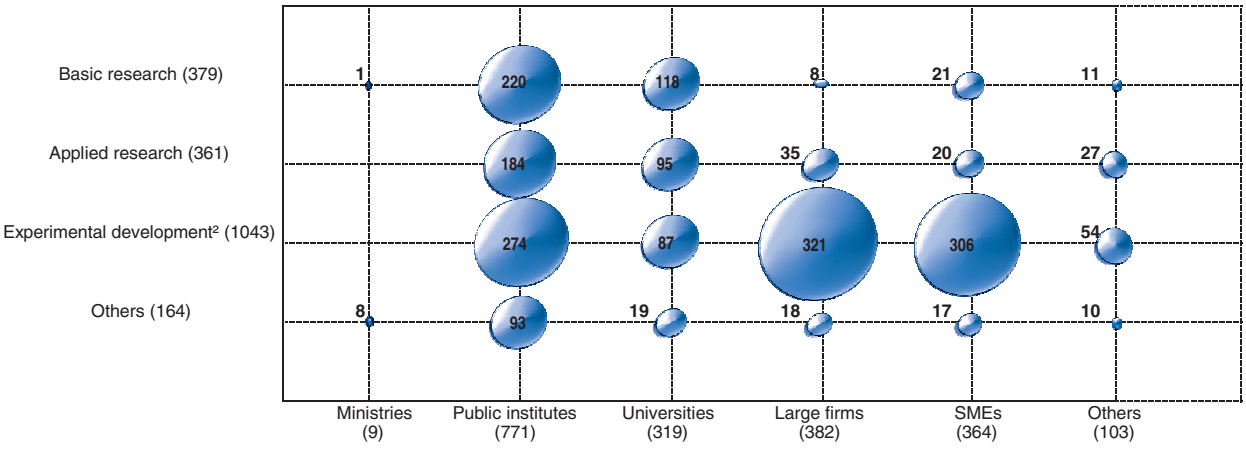
Sector	27 core green technologies	Technology level[1]
Climate change	1. Monitoring and modelling for climate change	55
	2. Climate change assessment and adaptation	55
Energy source technology	3. Silicon-based solar cells	80
	4. Non-silicon based solar cells	60
	5. Bio-energy	60
	6. Light water reactors	95
	7. Next-generation fast reactors	70
	8. Nuclear fusion energy	60
	9. Hydrogen energy R&D	60
	10.High-efficiency fuel cells	60
Technologies to improve efficiency	11. Plant growth-promoting technology	65
	12. Integrated gasification combined cycle	60
	13. Green cars	80
	14. Intelligent infrastructure for transport and logistics	65
	15. Green city and urban renaissance	60
	16. Green buildings	70
	17. Green process technology	50
	18. High-efficiency light-emitting diodes/green IT	80
	19. IT-combined electric machines	90
	20. Secondary batteries	40
End-of-pipe technology	21. CO_2 capture, storage and processing	84
	22. Non-CO_2 processing	70
	23. Assessment of water quality and management	40
	24. Alternative water resources	60
	25. Waste recycling	70
	26. R&D in monitoring and processing for hazardous substances	40
R&D in virtual reality	27. Virtual reality	70

1. Relative to advanced countries, based on patent data and appraisal by experts.

Source: KISTEP (2011).

Figure 2.6. **Public R&D expenditure on green technologies by research stage and sector in 2009**

In billion won[1]



1. The numbers in parentheses show the total amounts by type of research and by type of institution. The total is 1 948 billion won (0.2% of GDP).
2. Experimental development is defined as systematic work, drawing on knowledge gained from research and practical experience that is directed to producing new materials, products and devices; to installing new processes, systems and services; or to improving substantially those already produced or installed.

Source: KISTEP (2010).

were almost entirely financed by the government. Broader involvement and greater financial investment by business enterprises are needed to advance green research and make it a driver of private-sector innovation. Greater participation by universities, which employ around 70% of all doctorates but account for only 10% of total R&D spending, is also a priority. The government needs to encourage closer co-operation between government research institutes, universities and firms by facilitating joint projects, enhancing the mobility of researchers and expanding access to the research of government institutes.

Reducing barriers to imports of products important for climate change technology would also promote innovation. A recent OECD study found that Korea's trade barriers in this regard are high compared to those in the EU, Japan and the United States (Steenblik and Kim, 2009).

The impact of green growth on employment and income distribution

The impact of the Green Growth Strategy on output growth is uncertain. It is clear that GDP is currently overestimated, as it does not take into account the depletion of natural resources. By pricing environmental externalities, Korea can become more productive, even if that were not to show up in traditional measures of output, and create a solid foundation for long-term, sustainable growth.

Green growth will promote employment in such sectors as renewable energy, recycling, public transport, buildings and forest management. One estimate is that expanding renewables alone could increase labour demand by 20 million worldwide by 2030 (UNEP/ILO/IOE/ITUC, 2008). In addition, the European Renewable Energy Council estimates that achieving the EU target of boosting renewables to 20% of total energy consumption by 2020 could increase labour demand by more than 2 million (Renner *et al.*, 2009). These gains would be partially offset by losses in energy-intensive areas, though these employ a small portion of the workforce. Indeed, the most intensely-polluting industries in OECD countries, accounting for 82% of CO_2 emissions in the non-agricultural sector in 2004, employed only 8% of the total workforce (OECD, 2011f). Moreover, a number of studies have found that the shift towards renewables will generate more jobs per megawatt of power installed, per unit of energy produced, and per dollar of investment, than fossil fuel-based energy (OECD, 2011f). Shifting to green growth is likely to increase employment although it depends on how the revenues from an ETS or a carbon tax are used:

- An OECD study estimates that GHG emission reduction policies would boost employment by 1% if permit revenues are used to cut taxes on labour (OECD, 2011f).
- Achieving Korea's 2020 GHG emission reduction target would expand employment by 0.3% compared to the baseline (Kim and Lim, 2010). The estimate assumes that the renewable industry expands to 0.9% of GDP and that half of the revenues from the ETS is spent by the government.

However, the shift to green growth implies significant transition costs to achieve the long-term benefits. Changing production processes, consumption patterns and industrial structure will be expensive and time-consuming. To mitigate the transition costs, labour market policies should ensure that workers and firms are able to adjust quickly. The *OECD Reassessed Jobs Strategy* (OECD, 2006b) cites the importance of employment mobility and labour training to reconcile the "creative destruction" of green growth with a high level of employment, thereby achieving a smooth transition. Korea needs improvement in both of

these areas (Chapter 1). Creating a map of skill requirements for green jobs would be an important first step for upgrading the training system.

Labour market policies need to be accompanied by measures to ensure that green growth is not achieved at the cost of increased income inequality (Chapter 3). A successful Green Growth Strategy should thus take account of its distributional impact. Environmental taxes in Korea have a regressive impact as they increase the burden on low-income households, which spend a higher proportion of their income on energy (KEI, 2010). Revenues from auctioned permits and environmental taxes should be used in part to strengthen the social safety net.

Improving the quality of life through green growth

One of main benefits of green growth would be improved environmental conditions by cutting air pollution, reducing exposure to various pollutants and increasing access to basic environmental services, in particular clean water (OECD, 2011g). One study found that air pollution would be dramatically reduced if GHG emissions were cut by 50%, resulting in substantial gains in life expectancy (Bollen *et al.*, 2009). Using an index of economic welfare that combines changes in GDP per capita and the value of living longer, an OECD study estimates that the gains in life expectancy would halve the cost associated with climate change mitigation measures (de Serres and Murtin, 2011).

One of the greatest non-market benefits from green growth in Korea would be an improvement in the capital region's air quality, which is one of the worst in the OECD area. Indeed, emissions of nitrogen dioxide (NO_2) and sulfur dioxide (SO_2) were almost double that in Paris, London and Tokyo in 2008 (Jun, 2010). The high level of NO_2 is due to private vehicles, which are responsible for nearly three-quarters of air pollution in the capital region (Kamal-Chaoui *et al.*, 2011). The social costs of air pollution in Korea are estimated at 5% of GDP (OECD, 2006b).

The government's objective is to boost air quality in the capital region to the OECD average by 2014, primarily through the emission cap-and-trade programme introduced in 2008 covering NO_2 and SO_2 from large-scale emitters in the capital region.[10] The system was extended in 2010 to mid-size emitters, covering a total of around 300 factories in the capital region. The objective is to reduce annual emissions by nearly 30% between 2008 and 2012. At present, permits are allocated by grandfathering based on average emissions during the past five years. Thus far, however, average emissions were only about 60% of the target, indicating that it is too high. The target could therefore be gradually reduced to further improve air quality. As with an ETS, auctioning permits would enhance efficiency. The expectation of continued allocation through grandfathering weakens incentives to reduce emissions and acts as an entry barrier for new firms.

While the trading system applies to fixed sources of emissions, vehicles are a major pollution source in the capital region, making it important to diminish road traffic volume and enhance the energy efficiency of vehicles. Achieving the target to increase the share of public transport from 50% to 65% by 2020 requires improvement in its accessibility and convenience. Greater use of bicycles would be one alternative by offering public rentals and expanding bike paths. Another priority is to improve fuel efficiency of individual vehicles. The government introduced mandatory standards for vehicle GHG emissions and average fuel efficiency in 2012, at a level similar to that in the United States. This regulation will

initially be applied to 30% of all sales and expanded to 100% by 2015. Such standards will help Korea prepare for the introduction of a price on carbon.

Conclusion

The priority should be to establish a framework that will promote the transformation to a low-carbon economy while sustaining economic growth. *First*, it is essential to establish a price for carbon through an ETS and a carbon tax, thereby encouraging R&D and innovation in green technology by households and firms. It should be made clear that the cost of achieving Korea's GHG emission reduction target through regulation would be more than twice as expensive as introducing a carbon price (Lee, 2009). *Second*, given market failures, there is a role for the public sector, notably in R&D and in promoting renewable energy. *Third*, the shift towards a low-carbon economy requires the reallocation of capital and labour resources across sectors, making it important to ensure adequate financial support for green industry, labour market flexibility and effective training. *Fourth*, the distributional impact of the Green Growth Strategy should be taken into account and mitigated through comprehensive remedy measures to ensure fair outcomes. Such a framework would minimise the cost of achieving Korea's GHG emission target while promoting the continued convergence of living standards to the high-income countries. Specific policy recommendations to improve Korea's green growth framework are provided in Table 2.9.

Table 2.9. **Taking stock of structural reforms in the area of green growth**

Recommendations in the 2010 *Survey*	Actions taken or proposed by the authorities	Summary of recommendations for Korea's green growth strategy in the 2012 *Survey*
	Mitigating climate change	
Introduce market-based instruments as soon as possible to achieve the 2020 GHG emission target in a cost-effective way by ensuring that abatement costs are equal at the margin across all options.	The government submitted a bill to create an emissions trading scheme (ETS), which will begin in 2015, to the National Assembly in April 2011. It was approved by a subcommittee in February 2012.	Achieve final approval of the bill to create an ETS, preferably before the end of the current session of the National Assembly in May 2012.
Put a price on carbon emissions by creating a mandatory and comprehensive cap-and-trade ETS, which provides a clear price signal to enable market participants to make appropriate investments.	The cap-and-trade ETS in the bill will cover six types of GHGs and firms with more than 25 thousand tonnes of annual emissions.	Achieve final approval of the bill to create an ETS before the end of the current session of the National Assembly in May 2012.
Auction ETS permits.	Less than 5% of the permits in the proposed ETS may be auctioned in the first and second phases.	Announce a schedule to phase out grandfathering and expand the auctioning of permits.
Allow ETS permits to be banked for the future and, perhaps, borrowed.	In the proposed legislation, banking and borrowing would be allowed in the first phase.	Allow banking and borrowing to reduce price volatility.
Introduce a carbon tax in areas not covered by the ETS.	No action taken.	Introduce a carbon tax to reduce emissions in sectors not covered by the ETS.
Accelerate the phasing out of environmentally-harmful energy subsidies and ensure that energy prices in each sector reflect production costs.	The Coal Production Security Fund, which made up the difference between the cost of coal production and its sales price, was abolished in 2010.	Reform the electricity pricing system by raising prices to reflect unit costs in each sector and replacing the sectoral price structure with electricity prices set by voltage to effectively reflect costs.
Stop earmarking environmental taxes for transport construction, especially roads.	No action taken.	Stop earmarking environmental taxes for transport construction, especially roads.
Encourage the development of renewable energy resources by removing non-economic barriers and establishing a predictable and transparent support framework with incentives that decrease over time.	The Renewable Portfolio Standard (RPS) was launched in 2012, with an aim of increasing renewables' share of the total electricity supply from 2% in 2012 to 10% by 2022.	Monitor the market for renewables to avoid excessive reliance on low-quality options, while promoting long-term contracts to stabilise prices.
		Phase out the Target Management System, once the ETS and the carbon tax are in place.

Table 2.9. **Taking stock of structural reforms in the area of green growth** *(cont.)*

Recommendations in the 2010 *Survey*	Actions taken or proposed by the authorities	Summary of recommendations for Korea's green growth strategy in the 2012 *Survey*
	Creating new engines for growth	
Ensure that spending in the Five-Year Plan (2009-13) is implemented in a transparent and effective manner to address market failures, while avoiding outlays designed to boost specific industries.	The government started monthly implementation evaluation meetings, chaired by the Prime Minister, from September 2011.	Effectively use the large-scale expenditures in the Five-Year Plan to promote green investment and innovation that will underpin sustained growth and give rise to new economic opportunities.
Promote green innovation by increasing its share in public R&D, focusing on basic research, particularly in areas related to large-scale private-sector projects and in technologies still too far from commercial viability, to attract private investment.	Green R&D is to rise from 16% of the government's total R&D spending in 2009 to 20% by 2013, while the share of basic research in total R&D is to rise from 15% to 35% between 2008 and 2012.	Focus more on basic research in green technologies in public research institutions, emphasising technology-neutral approaches, and attract more involvement from industry and academia.
Improve the overall innovation framework by spending more on basic research, closely linking government research institutes, universities and industry and reducing the mismatch between human resources and research spending in universities.	Three-quarters of the total number of green R&D projects were carried out by co-operation between research institutes in different sectors. However, the financial contributions of private firms amounted to only 8% of the total.	Encourage closer co-operation between government research institutes, universities and firms by facilitating joint projects, enhancing the mobility of researchers and expanding access to the research of government institutes.
Design the green certificate programme and the green finance initiatives carefully to limit the risk of bubbles.	The professional organisations of each technology sector are responsible for evaluation, and a two-step evaluation procedure, including an on-site inspection and document review, is required.	Channel necessary funds to green businesses through the existing market-based systems and private firms rather than directly through public institutions.
Ensure good framework conditions, including openness to foreign investment and a strong competition framework, to facilitate entry of new firms and the exit of firms in declining industries.	The government relaxed 28 market entry regulations, primarily in services, and simplified the approval process for FDI in 2009-10.	Continue to foster green financing for firms, while enforcing rigorous certificate criteria and limiting the inherent risks of "picking winners".
Enhance flexibility in the labour market and ensure adequate training of workers to facilitate the transition toward a greener economy.	The government introduced free training programmes for non-regular workers in 2009 and expanded them in 2010.	Enhance labour market flexibility and expand effective training systems for skills needed for green growth.
		Incorporate social measures, such as expanding the EITC and the social safety net, in the Green Growth Strategy to offset its adverse distributional impacts.
	Improving the quality of life through a better environment	
Gradually reduce the level of emissions allowed under the cap-and-trade programme covering NO_x, SO_x and TSP in the capital region to improve air quality to the level in advanced OECD countries.	The target was set to reduce annual emissions by nearly 30% between 2008 and 2012.	Continuously reduce overall emission caps under the cap-and-trade programme to improve air quality and shift from allocation through grandfathering to an auction scheme to enhance efficiency.
Increase the Average Fuel Efficiency standards to reduce NOx emissions, notably in the capital region.	The government enacted mandatory standards for vehicle GHG emissions and average fuel efficiency in April 2010. This regulation will be applied to 30% of all sales in 2012 and expanded to 100% by 2015.	Improve the accessibility and convenience of public transport, promote the use of bicycles and raise the Average Fuel Efficiency standards for vehicles to reduce pollution, notably in the capital region, until a price on carbon is introduced.

Notes

1. Non-Annex I countries had no obligation to set a specific GHG reduction target for 2008 to 2012 under the Kyoto Protocol to the UN Framework Convention on Climate Change. The 152 non-Annex 1 countries, which are mainly developing countries, include four OECD members (Chile, Israel, Mexico and Korea).
2. A long-term econometric model estimates that a significant expansion of the service sector would reduce GHG emissions (de Serres *et al.*, 2010).
3. This study, based on 2007 data, is by the Korea Economic Research Institute, which was established and is supported by the Federation of Korean Industries.
4. An IEA/OECD analysis (2007) of a number of industries, including iron and steel, cement, chemicals, petrochemicals, paper and printing and pulp, showed that Japan and Korea have higher energy efficiency than Europe and North America. Other studies show that Korea's steel and petrochemical industries are among the most efficient in the OECD area (Lee and Choi, 2010 and Lee, 2011b).

5. In contrast, New Zealand's ETS will cover all sectors of its economy, thus eliminating the challenge of co-ordinating an ETS and a carbon tax.
6. The OECD definition includes industrial waste and non-renewable municipal waste, which is excluded under IEA methodology on the grounds that they are not biodegradable (IEA/OECD, 2011).
7. The European Commission (2005, 2008) compared the cost of renewable energy support schemes with the proportion of the potential renewable energy supply share achieved and concluded that well-designed FIT schemes are generally the most effective. In contrast, another study found that the German FIT scheme had encouraged inefficient wind generation in low-wind areas (Jamasb *et al*., 2008). Newbery (2010) observed that FITs for solar photovoltaic power in Spain and Germany had been set too high, raising prices excessively.
8. In Korea, there have been no issues of green bonds. In the global bond market, green bond issuance to date amounts to only 0.01% of total capital (OECD, 2011e).
9. More targeted support may be necessary to achieve certain climate goals, such as developing renewable energy through an RPS scheme.
10. During 2008-10, the number of transactions under this system reached 114 for 3 858 tonnes, only 1.5% of the total amount of permits, reflecting the fact that emissions were only 60% of the amount of permits.

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Chapter 3

Promoting social cohesion in Korea

Korea faces the challenge of reversing rising inequality while sustaining robust economic growth. Well-targeted increases in Korea's low level of social spending are needed to fill holes in the safety net, especially for the elderly. The development of social security depends on closing gaps in coverage, which are due in part to labour market dualism. Dualism creates serious equity concerns, as non-regular workers face significantly lower wages, precarious jobs, less coverage by social security and less training. A comprehensive approach is required to break down dualism, including reduced employment protection for regular workers, improved social insurance coverage for non-regular workers and expanded training of non-regular workers. Education reforms are also needed to promote inclusive growth, notably by: i) *improving the access of low-income children to high-quality early childhood education and care;* ii) *reducing reliance on private tutoring, notably at hagwons; and* iii) *expanding income-contingent loans to tertiary students.*

During its high growth era, which lasted until the 1997 Asian financial crisis, Korea combined rapid growth with a relatively equal income distribution. As in most OECD countries, however, the gap between rich and poor in Korea has expanded in recent years (Figure 3.1), an alarming trend in a country with a tradition of egalitarianism and homogeneity. Inequality has risen to the top of the political agenda, as evidenced, for example, by the issues of half-price tuition and school lunches in Seoul and by entrenched labour market dualism. Already in 2008, a survey of 34 countries found that the share of the population that felt that the benefits and burdens of economic development have not been fairly distributed in their country was highest in Korea at 86%.[1] Korea faces the challenge of returning to its pre-crisis pattern that combined strong economic growth with improving equality.

Figure 3.1. **Income inequality and relative poverty are increasing**[1]

1. For urban households with at least two persons.
2. The Gini coefficient can range from 0 (perfect equality) to 1 (perfect inequality).
3. Relative poverty is defined as the share of the population that lives on less than half of the median income.

Source: Statistics Korea.

StatLink http://dx.doi.org/10.1787/888932592945

The widening income disparity reflects a number of structural changes that would be very difficult for the government to reverse. Moreover, Korea's international competitiveness and continued output growth depend on such structural changes, making it important for the authorities to facilitate, rather than hinder, such changes. At the same

time, it is clear that Korea's robust growth, at an annual rate of 4% since 2000, has not been sufficient in itself to address the problems of inequality and poverty. Korea should therefore promote social cohesion through effective and well-targeted social spending, while avoiding wasteful outlays and negative incentives. Public social spending has been increasing at a 12% annual rate, adjusted for inflation, since 1990 and population ageing alone will sustain that momentum. A government research institute estimated that public social spending under current policies would increase from less than 8% of GDP in 2011 to between 17.6 and 21.1% by 2050, depending on assumptions about economic growth (Won *et al.*, 2011). Given the difficulty of scaling back social spending, as seen in some European countries, Korea needs to be cautious in expanding social welfare programmes. In addition, higher social spending needs to be financed, at least in part, by higher taxes, which tend to have a negative impact on growth even when they are carefully designed to limit such effects (Chapter 1). After a brief review of trends in inequality and social spending, this chapter discusses priorities for social spending.

Korea should also address the underlying causes of inequality. A recent OECD study concluded that while technological change and globalisation play at least some role in driving inequality patterns, structural policy can also have an important influence on inequality outcomes, in particular through education and labour market policies (Koske *et al.*, 2011). After considering social spending, the following sections discuss reforms in the labour market and the education system, as well as the service sector, which would help reduce inequality. Policy recommendations are summarised in Box 3.2 at the end of the chapter.

Rising income inequality and relative poverty and the factors behind it

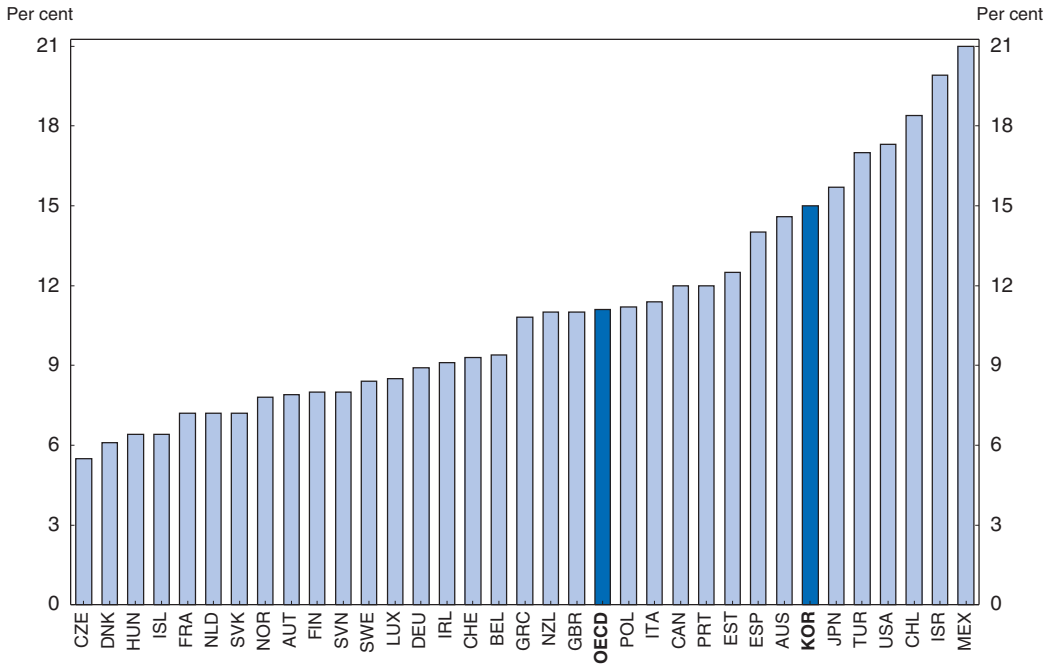
Between 1960 and the mid-1990s, Korea achieved one of the highest growth rates in the world, while its income distribution stood out as one of the most equitable among developing countries (Sakong, 1993). Indeed, wage inequality declined during the 1980s and the first half of the 1990s (Kang and Yun, 2008). Korea's outstanding performance was cited as support for the hypothesis of a positive relationship between growth and equity (Alesina and Rodrik, 1994). However, the 1997 Asian financial crisis sparked a jump in both income inequality and relative poverty (Figure 3.1). Despite Korea's strong economic recovery, these two indicators continued to deteriorate steadily during the past decade. On a disposable income basis (*i.e.* after taxes and transfers), the Gini coefficient matched the OECD average of 0.315 in 2008. Moreover, the ratio of the top quintile to the bottom in Korea was 5.7, compared to the OECD average of 5.4 (OECD, 2011b). While there was a small improvement in 2010-11 in inequality indicators for urban households, it is too early to conclude that the deterioration in equality has been stopped.

Meanwhile, the relative poverty rate doubled between 1996 and 2008, based on market income. According to the OECD measure based on disposable income, the poverty rate was 15% in 2008, the seventh highest in the OECD area (Figure 3.2), reflecting a high rate of 47% for the elderly. Nevertheless, 88% of the poor were in households headed by a working-age person and the rate among them is increasing rapidly (Koh, 2011). There is a growing consensus that assessments of economic growth should not focus solely on income growth, but should take into account income distribution (Stiglitz *et al.*, 2009).

There has been considerable debate on the factors responsible for rising inequality, focusing on the roles of technological progress and globalisation. *First*, technological

Figure 3.2. **International comparison of relative poverty rates**[1]

Per cent of total population in 2008 or latest year available



1. The poverty rate is defined as the share of individuals with equivalised disposable income less than 50% of the median for the entire population. The income concept used is that of household disposable income adjusted for household size. Data for Chile are for 2009.

Source: OECD (2011b), *Divided We Stand: Why Inequality Keeps Rising*.

StatLink http://dx.doi.org/10.1787/888932592964

progress has tended to shift production technologies in favour of skilled labour. Korea, the OECD country with the largest increase in wage dispersion, also has relatively rapid technological change, as measured by R&D spending in the business sector. However, the positive association of wage dispersion and technology in the OECD area is weak (OECD, 2011b). *Second,* the rapid integration of trade and financial markets, particularly with developing countries, may have generated a relative shift in labour demand in favour of highly skilled workers. In Korea, though, the degree of wage inequality is very similar in the tradable and non-tradable industries and they have followed similar patterns in recent years (An and Bosworth, 2011). *Third*, changes in household structure – notably the increase in single-headed households – have increased inequality, although it was much less important than changes related to the labour market (OECD, 2011b).

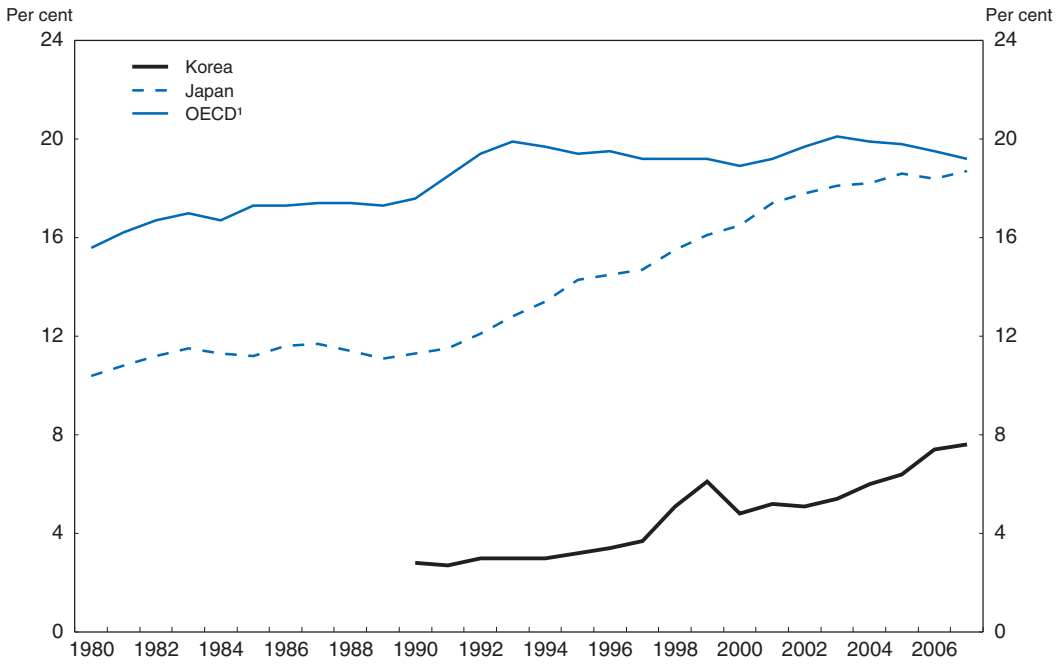
In the case of Korea, a key factor was structural change in the economy. During the high growth period, labour shifted from low-paying jobs in agriculture to higher-paying jobs in manufacturing and services, thus reducing inequality. However, the share of employment in manufacturing has fallen from 28% in 1990 to 18% by 2007. The shift from high-paying jobs in manufacturing to lower-paying jobs in services has increased inequality. A second major factor, discussed below, is labour market dualism, which results in large wage gaps between regular and non-regular workers.

Social spending is low but increasing rapidly

The development of social spending in Korea, which was still one of the poorest countries in the world only 50 years ago, is relatively recent. Landmark events include the introduction of a public pension system in 1988, universal health insurance in 1989 and unemployment insurance in 1995. The rapid rise in public social spending boosted its share of GDP from 2.8% in 1990 to 7.6% in 2007 (Figure 3.3).

Figure 3.3. **International comparison of public social spending**

Per cent of GDP



1. Data are available for 34 OECD countries from 2000. Data prior to 2000 have been interpolated backwards from an unweighted OECD average of 23 countries.

Source: OECD Social Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932592983

However, the upward trend in social welfare spending has been inadequate to stop the deterioration in income distribution, reflecting several factors. Most importantly, gross public social spending in Korea is the second lowest in the OECD area and well below the OECD average of 19.2%. The gap on a net basis is less, reflecting Korea's relatively low tax burden, which means less of the benefits are "clawed back". In addition, private social spending, both mandated and voluntary, is slightly above average in Korea. Nevertheless, total net social spending (public and private) amounted to 10.4% of GDP, the second lowest in the OECD area and well below the OECD average of 19.6%. In the wake of the 2008 global financial crisis, gross public social spending in Korea is estimated to have increased by 1.4 percentage point to 9.0% of GDP in 2010, compared to a 3.0 percentage-point rise in the OECD average to 22.2% (Adema *et al.*, 2011).

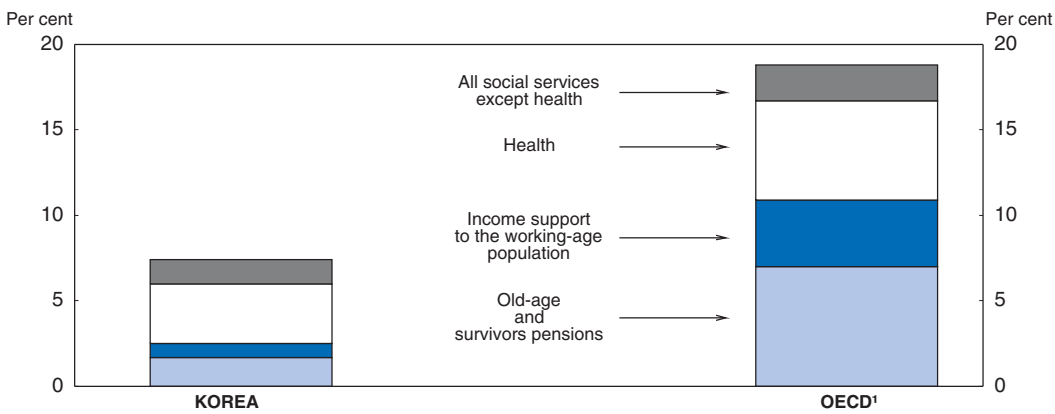
Public social spending in Korea was lower than the OECD average in each of the major areas (Figure 3.4):

- *Pensions*: Korea's spending of 1.7% of GDP was only a quarter of the OECD average, reflecting the relatively recent introduction of the National Pension Scheme (NPS) and its young population.
- *Income support to the working-age population*: Korea's outlays of 0.8% are far below the OECD average of 3.9%, due in part to the low number of persons receiving unemployment benefits. Moreover, support for families, such as child benefits and childcare support, amounted to only 0.5% of GDP, the lowest in the OECD and well below the OECD average of 2.2% (OECD, 2011a).
- *Health care*: Korea's low share of 3.5% reflects its relatively young population, the limited coverage of the National Health Insurance and high co-payment rates.

As a result, government transfers accounted for only 2.7% of disposable income in Korea, the second lowest in the OECD area and well below the average of 12.3%, after accounting for taxes (OECD, 2011b).

Figure 3.4. **The composition of public social spending in Korea compared to the OECD average**

As a per cent of GDP in 2007



1. Weighted average of the 34 OECD countries.
Source: OECD Social Expenditure Database.

StatLink http://dx.doi.org/10.1787/888932593002

Besides its low level, social spending is not well targeted, as only a quarter of total cash benefits from the government go to the poorest 20% of the population. The problem of poor targeting is partly due to blind spots in coverage, particularly among the self-employed and non-regular workers. Meanwhile, the tax burden in Korea is low – 25% of GDP compared to an OECD average of 33% in 2010 – and has little impact on income distribution because Korea is one of only a few countries that combines a relatively low tax burden with very little progressivity (Joumard *et al.*, 2012). Consequently, Korea's tax/benefit system is the least effective among OECD countries in fostering equality. Indeed, it reduced the relative poverty rate in 2008 by only 2.5 percentage points relative to market incomes, the lowest in the OECD area. In OECD countries, the tax/benefit system reduces relative poverty by an average of 15 percentage points.

Increasing social spending to promote social cohesion

Given its limited impact and gaps in coverage, reforms are needed to improve social welfare. The government should move cautiously and incrementally in developing social welfare programmes that are carefully designed to achieve their intended objectives, while avoiding wasteful spending and negative externalities. Public social spending increased at an 11% annual rate in real terms between 1990 and 2007, the fastest in the OECD area. Under current policies, however, population ageing alone is projected to boost public social spending from 7½ per cent of GDP at present to around 20% by 2050 (Won *et al.*, 2011). Consequently, social spending increases should be targeted at those most in need rather than provided universally. The main priorities are the Basic Livelihood Security Programme, the earned income tax credit, the Basic Old-Age Pension and the ceiling on co-payments for health care. In addition, it is important to upgrade the collection of premium payments.

The Basic Livelihood Security Programme (BLSP)

The BLSP, Korea's major welfare programme, provides cash and a package of in-kind benefits, including housing, medical and educational benefits, to those living under the absolute poverty line. Although BLSP benefits have increased at a double-digit rate, they amounted to only 0.9% of GDP in 2009. Benefits are provided to only 3% of the population, half of those below the absolute poverty line and far below the 15% living in relative poverty. The limited coverage is due to strict eligibility requirements that include income, assets and the possibility of assistance from family members. The BLSP is administered by local governments, which must cover 10 to 60% of the costs, a policy aimed at controlling outlays. Facing this considerable financial burden, local authorities limit outlays for the poor. Consequently, some eligible low-income households do not receive assistance because of a lack of funds.

To increase the effectiveness of the BLSP, the eligibility conditions should be relaxed so as to cover all of those living below the absolute poverty line. In addition, benefits should be a right for all those who are eligible rather than dependent on local government finances. The fact that BLSP recipients receive all or none of the in-kind benefits creates strong incentives to enter the system and equally strong disincentives to leave. To improve incentives, in-kind benefits should be provided and withdrawn separately based on individual needs.

Beneficiaries who are able to work are required in principle to participate in training programmes run by central and local governments. In practice, 87% of able-bodied recipients were granted waivers for various reasons in 2009, suggesting a need to strengthen the training requirements. For those who do participate, the results are poor. Only 6% of those in the local government's Self-Reliance Programme were able to escape poverty (Koh, 2011). Training programmes should be consolidated to improve their effectiveness. In general, activation policies have played a small role in Korea, reflecting the low level of spending on active labour market policies at only 0.1% of GDP, well below the OECD average of 0.5%.

The earned income tax credit

The earned income tax credit (EITC) used in a number of OECD countries is another important tool for reducing poverty. The EITC lowers taxes or provides a refund when the deduction is larger than the tax amount, thereby raising take-home pay at the low end of

the income distribution. Korea introduced this in-work tax credit in 2008, targeting the 7.4 million daily and temporary workers. Previously, benefits for people who were capable of working were extremely limited, aside from the BLSP. In-work benefits have been found to raise employment rates among the targeted group, with very low efficiency costs (Hwang, 2011). The impact of an EITC in increasing total labour supply and decreasing unemployment is greater in countries with a wide earnings distribution, low tax rates on labour, low benefits for the non-employed and a low minimum wage (Bassanini *et al.*, 1999). As each of these conditions holds in Korea, an EITC is likely to be particularly effective and should thus be a major tool to reduce inequality and poverty. Another study found that an EITC is more effective than a minimum wage in reducing poverty and encourages employment in contrast to minimum wages (Pearson and Scarpetta, 2000).

Korea's EITC is at a very early stage of development. It offers a maximum of 1.2 million won (about $1 050) per year to those who meet strict income and property requirements,[2] are employed and have at least one child under 18. Persons who received benefits from the BLSP for three months or more are excluded from the EITC. The government estimated that 0.6 million households (3.6% of the total) received the EITC in 2009, with total payments of 454 billion won (0.04% of GDP). The average payment is thus around $680 per household. The EITC has a steep phase-out once workers reach an annual salary of 12 million won (one-third of the average wage in 2011) and, by 17 million won, is entirely phased out.

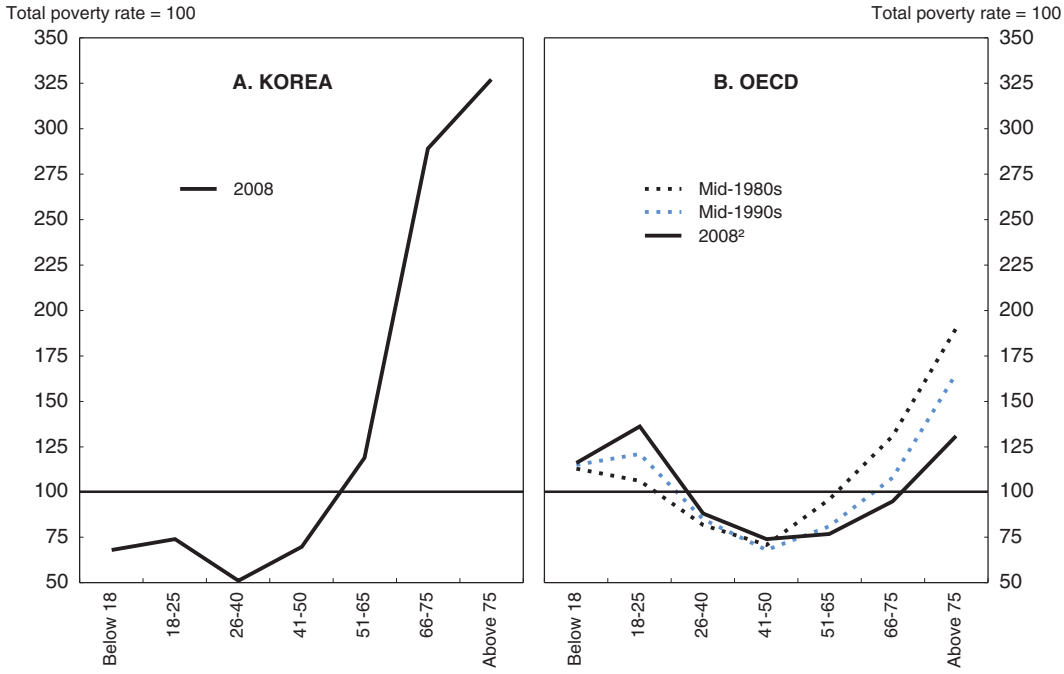
To have a significant effect on income distribution, the number of recipients and the amount of benefits provided by the EITC must be expanded. Given that the average wage of the 5.8 million non-regular workers is around 16 million won per year, there would appear to be a large pool of potential recipients. The EITC was extended in 2012 to childless households and some self-employed workers, while the income ceiling on eligibility has been increased, nearly doubling the number of recipients since 2009. The ceiling on assets could be relaxed to allow homeowners to participate. A slower phase-out of the EITC would avoid negatively affecting work incentives. Finally, the EITC would be more successful if accompanied by effective activation measures, such as training, to help the unemployed find jobs that would allow them to participate in the EITC. In the long run, the goal should be to extend the EITC to the low-income among the 7 million self-employed once there is adequate transparency about their income. The self-employed, who account for about 30% of the labour force, the third-highest share in the OECD, include a large share of low-income workers.

The Basic Old-Age Pension

As noted above, relative poverty is much higher among the elderly. The rate for those aged 66 to 75 in Korea was nearly three times higher than the 15% rate for the entire population, in contrast to the OECD area, where it equals the overall average (Figure 3.5). Moreover, 37.5% of the elderly were in absolute poverty with an income below the minimum cost of living (Bae, 2011). The high rate of poverty is explained in part by the fact that the NPS was introduced relatively recently. Consequently, only one-fifth of those over 65 receive benefits, which tend to be rather small, given the short contribution period. In addition, many poor elderly are not eligible for the BLSP on the grounds that they have working-age children, although many of those children cannot or will not support their parents.

The Basic Old-Age Pension System, introduced in 2008, provides assistance to elderly people who meet the income and asset criteria. At present, around 70% of the elderly

Figure 3.5. **The rate of relative poverty by age group**[1]



1. The figure shows the poverty rate for each age group using an index, with the rate for the entire population set at 100. The poverty threshold is set at 50% of median income of the entire population. The OECD average includes 20 member countries.
2. Data refer to the most recent year in the late-2000s (2008 for most countries).

Source: OECD Database on Income Distribution and Poverty (www.oecd.org/els/social/inequality).

StatLink http://dx.doi.org/10.1787/888932593021

receive the benefit, which is set at only 5% of the average wage. As a result, the benefit spreads out resources very thinly over a large segment of the older population while doing little to reduce poverty among the elderly. A larger benefit that is more targeted at low-income elderly would be more effective. However, if it is politically impossible to withdraw the benefit from the relatively affluent elderly, the government should at least freeze their benefits, while allowing them to grow for the relatively poor.

National Health Insurance (NHI)

The NHI aims at universal coverage, with 63% of the population insured as employees and 37% as self-employed. Among the latter, 2 million persons – a quarter of households – were at least three months behind in their contributions in 2008 (Kim *et al.*, 2011). After six months, patients are denied insurance coverage. For the 3% of the population receiving benefits from the BLSP, their insurance is covered by Medical Aid. Ensuring universal coverage may require extending Medical Aid to households that do not qualify for the BLSP.

Out-of-pocket payments – co-payments and the cost of non-covered services – by patients amounted to 4.6% of household final consumption in 2007, the third highest in the OECD area. The high out-of-pocket payments are inequitable and regressive because they do not depend on the income of patients, resulting in inequality in the economic burden of illness. In addition, they also increase poverty. The proportion of households below the national poverty line, defined as the minimum living expense, rises from 10.8% to 12.5% if health spending is included (Kwon, 2009). Out-of-pocket payments thus reduce both

necessary and unnecessary health care. In addition to penalising low-income households, out-of-pocket payments create a substantial burden on those with chronic health problems.

Ceilings on co-payments introduced in 2004 limited them to 3 million won (around $2 665) every six months. Consequently, a patient might pay up to 6 million won per year, or 51% of average per capita household disposable income. The ceiling system was revised in 2009 to take account of the insured's ability to pay, as measured by the amount of social insurance payments. However, such payments may not be the best measure of ability to pay, given the underpayment by the self-employed. For the lower half of households, co-payments are limited to 2 million won each year, 3 million won for the next 30% and 4 million won for the top 20%. However, for a person earning half of the average disposable income per capita, co-payments could still be as high as one-third of their income. In sum, the NHI states that "the current level of protection still falls short of being adequate in terms of risk protection" (NHIC, 2009), making it important to further reduce ceilings.

Improving participation in social insurance programmes

Weak coverage of the NPS and the EIS is a problem for non-regular workers. For NHI, those not covered through their workplace are nevertheless insured. Overall, only around 40% of non-regular workers are covered by workplace-based social insurance systems. Coverage is particularly low at small firms, which tend to have a higher proportion of non-regular workers. Indeed, more than half of employees at firms with less than ten workers are not covered by any of the three major social security systems, compared to only 4.6% at firms with more than 100 workers (Table 3.1). The generally precarious financial health of SMEs is one factor that discourages the payment of premiums on behalf of their employees.

Table 3.1. **Participation rates of employees in the NPS, NHI and EIS**[1]

In per cent

Share of employees participating in:	Total	By firm size (number of workers)		
		1-9	10-99	More than100
All three programmes	64.5	39.2	73.5	92.1
One or two programmes	5.4	5.3	6.2	3.3
None	30.1	55.5	20.3	4.6
Total	100.0	100.0	100.0	100.0

1. The three major social security programmes are the National Pension Scheme, National Health Insurance and the Employment Insurance System. Employees not covered through their workplace are still insured by the NHI.

Source: Koh (2011).

The inadequate coverage of the NPS needs to be addressed. In 2010, 30% of the working-age population did not contribute to public pension programmes, even though participation is mandatory. The share of workers not participating is three times higher among high school graduates than tertiary graduates, even though the NPS has a very strong redistributive element (Chang, 2011). Some of the participants will not be able to draw pension benefits after retirement because they have not completed the minimum contribution period (ten years in case of the NPS). Even if they qualify, the amount of pension benefits may be too small to prevent poverty. For a participant with 40 years of contributions, benefits will amount to only 40% of their average lifetime earnings, well

below the OECD average of 58% (OECD, 2011d). Moreover, many under-report income, further reducing their eventual benefits.

The government announced a plan in 2011 to subsidise SME contributions to social insurance systems (see below), which should help boost coverage. It is essential, though, to improve compliance with social insurance systems to expand the coverage of the social safety net. Each insurance system has evolved independently, with a lack of co-ordination with the other systems, especially in terms of collecting contributions. Beginning in 2011, the collection of social insurance was combined under the NHI. Transparency about income and compliance could be further improved by having the National Tax Service collect social insurance contributions, as it would allow the authorities to compare firms' wage costs as reported on their tax forms with their social insurance contributions. However, the impact on compliance would be limited by the fact that 40% of employees are not subject to income tax. The fundamental problem is labour market dualism, *i.e.* the large share of non-regular workers who slip through the social safety net, which is discussed in the following section.

Labour market reforms to promote social cohesion by breaking down dualism

Korea is one of five OECD countries identified as having a high degree of inequality originating in the labour market (Koske *et al.*, 2011). A key factor is the high share of non-regular workers – which includes fixed-term, part-time and atypical workers (such as those from temporary worker agencies). Regular workers are characterised by high wages, employment inflexibility, high employment protection and broad coverage by the social safety net and active labour market policies (Table 3.2). In contrast, non-regular workers face low wages, unstable employment, low employment protection and weak coverage by the social safety net and active labour market policies. The share of temporary workers, who account for more than one-third of non-regular workers in Korea, was the fourth highest in the OECD area in 2010 (Figure 3.6).

Table 3.2. **Flexibility and security in the Korean labour market**

Types of workers	Flexibility		Security		
	Numerical[1] flexibility	Functional[2] flexibility	Employment protection	Social safety net	Active labour market policies
Regular workers in the manufacturing sector and/or in large corporations	Very low flexibility	Very low flexibility	High	Included in coverage, albeit ineffective	Included in coverage, albeit inefficient
Non-regular workers in the service sector and/or SMEs	High labour mobility, low job security	No flexibility	Very low	Mostly excluded from coverage	Mostly excluded from coverage

1. The ability of firms to adjust its labour inputs to accommodate changes in demand.
2. The ability of firms to deploy workers between tasks as demand for different types of labour changes.

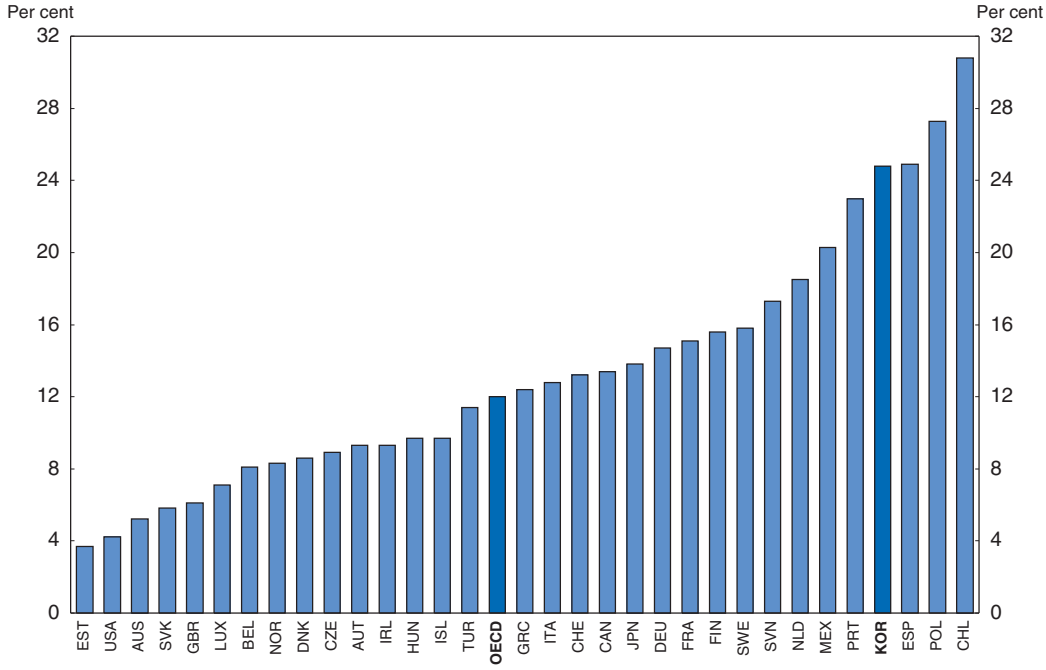
Source: Koh *et al.* (2010).

Factors explaining the high level of labour market dualism

Korea's rapid integration in a globalised economy, particularly following the 1997 Asian crisis, intensified competition, prompting firms to reduce fixed costs, including labour, and pursue employment flexibility by hiring non-regular workers (Koh *et al.*, 2010). Indeed, non-regular workers were paid only 53% as much as regular workers per hour in 2010. According to a government survey, 32.1% of firms cited reducing costs as the most

Figure 3.6. **International comparison of temporary employment**

As a share of total employees in 2010[1]



1. Temporary employees are defined as wage and salary workers whose job has a pre-determined termination date. For Korea, it includes only workers with a fixed-term contract, temporary agency workers and on-call workers (excluding double-counting).

Source: OECD Employment Outlook Database.

StatLink http://dx.doi.org/10.1787/888932593040

important reason for hiring non-regular workers (Table 3.3). Their lower wages are explained in part by productivity differences. However, the gap remains significant at 13%, according to the government, after adjusting for workers' tenure, gender, age and educational attainment, suggesting that discrimination plays a role. Another study estimated the gap at 7% (KDI, 2009), while the Korea Employers Federation estimated the productivity gap at 22% below regular workers, about half the gap in wages (KEF, 2006). If the wage gap were entirely explained by productivity differences, firms would have less

Table 3.3. **Reasons given by firms for hiring non-regular workers**

Percentages based on a government survey of firms

	Reduce labour costs	Increase employment flexibility	Perform peripheral tasks	Perform short-term tasks	Other reasons	Total
All industries	**32.1**	**30.3**	**18.5**	**13.9**	**5.2**	**100.0**
Manufacturing	28.7	34.5	17.9	14.7	4.1	100.0
Non-manufacturing	35.4	26.1	19.1	13.2	6.2	100.0
By firm size	.					
Less than 30	35.5	28.9	15.8	13.2	6.6	100.0
30-99 workers	28.5	27.6	18.7	18.2	7.0	100.0
100-299 workers	37.7	26.2	15.5	14.3	6.3	100.0
300-499 workers	34.3	29.4	19.6	12.7.	3.9	100.0
More than 500	28.1	49.9	22.9	9.6	1.6	100.0

Source: OECD (2007).

reason to hire non-regular workers to reduce labour costs. Non-regular workers are primarily in fixed-term positions and work as substitutes for regular workers (Kim, 2010). In addition to lower hourly wages, the labour costs for non-regular workers are reduced another 6½ per cent by their relatively low participation in social insurance systems, which reduces firms' contributions. On top of this, non-regular workers receive fewer welfare benefits from firms. The savings on welfare costs adds up to 10%.

The second major reason for hiring non-regular workers is to increase employment flexibility (Table 3.3). The reforms adopted in the wake of the 1997 Asian financial crisis strengthened competition by reducing import barriers, liberalising restrictions on foreign direct investment inflows and upgrading competition policy (2000 *OECD Economic Survey of Korea*). Such reforms increased Korea's integration in the world economy, with imports' share of GDP doubling from a quarter in 1993 to one-half by 2008. These factors made employment flexibility a priority for firms, especially large ones, given the difficulty and cost of laying off regular workers, who receive relatively high employment protection as a result of government policies, business practices, social customs and labour unions (Koh *et al.*, 2010). According to the Ministry of Employment and Labour, "Regular workers enjoy a high level of legal protection in Korea and managements' employment adjustment decision often faces strong opposition, which is still prevalent in the Korean labour market".[3] The importance of non-regular workers as a buffer against cyclical shocks has become increasingly evident since the 1997 crisis, as their share has become more closely correlated with economic cycles.

A 2011 government survey found that slightly less than half of non-regular workers voluntarily accepted non-regular status (Table 3.4). Consequently, 52% of the 5.8 million non-regular workers – about 3 million employees – are involuntarily employed as non-regular workers, a group that is 3.5 times larger than the 0.85 million unemployed in 2011. Atypical workers, such as dispatched workers, are the least likely to voluntarily accept non-regular employment. The high share of non-regular workers is thus driven primarily by firms' need for employment flexibility and lower wage costs, rather than by workers' preferences. The workers who involuntarily work in non-regular employment accept it primarily to obtain immediate income. As a group, non-regular workers tend to be older, less educated, employed in SMEs, have shorter tenure and work in the service sector. In

Table 3.4. **Reasons given by non-regular workers for accepting non-regular employment**

	Total	Temporary workers	Part-time workers	Atypical workers
Voluntary non-regular workers	**47.6**	**55.1**	**44.7**	**35.4**
Satisfied with working condition	44.4	49.5	35.3	40.4
To obtain job security	23.2	30.7	3.5	17.2
To balance work with other activities[1]	19.0	14.1	43.5	14.1
To have more flexibility in work hours[2]	13.4	5.6	17.7	28.4
Involuntary non-regular workers	**52.4**	**44.9**	**55.3**	**64.6**
To obtain immediate income	76.5	74.6	68.3	83.5
Cannot find a desirable job	13.0	15.4	12.7	10.3
To balance work with other activities[1]	7.8	8.4	15.1	3.0

1. Includes balancing work with family responsibilities and educational and vocational training, as well as to accumulate job experience.
2. This category includes obtaining performance-based pay.

Source: Statistics Korea.

addition, women are over-represented; 42% of female employees are in non-regular employment compared to 28% of males (Chapter 1).

The negative consequences of dualism are exacerbated by the lack of mobility between non-regular and regular employment. According to one government report, "The severity of the non-regular work issue in Korea is derived from the fact that non-regular workers find it very difficult to escape from the trap of non-regular work" (Chung, 2008). In other words, non-regular employment is unlikely to be a stepping stone into regular jobs (KDI, 2009), in contrast to many other OECD countries, where a large share of temporary workers moves into permanent employment (OECD, 2006). The probability of making the transition to regular status tends to be higher for younger male workers in large manufacturing firms with longer tenures (Kim, 2009).

The impact of the 2007 labour law reform

After five years of discussion with the social partners, the government reformed the labour law in 2007 to prohibit unreasonable discrimination against fixed-term, part-time and temporary agency workers.[4] Between July 2007 and February 2012, 2 443 cases affecting 5 262 workers have been filed with the Labour Relations Commission. Some workers facing discrimination have reportedly chosen not to bring their cases to the Commission for fear of reprisals.[5] Nevertheless, a considerable number of firms have endeavoured to reduce discrimination against non-regular workers since the 2007 reform. This may have contributed to the slight narrowing in the wages of non-regular workers from 85% of regular workers in 2007 to 87% (after adjusting for differences in individual characteristics, such as gender, education, tenure, occupation and age) in 2010.

In addition, the 2007 reform limited the length of employment for non-regular workers to a maximum of two years, with some exceptions, to avoid their "excessive use".[6] According to a government survey of fixed-term workers whose contracts expired after working more than 18 months:

- 22% were converted to non-fixed-term contract workers. Most firms reportedly did not change the salaries of the converted workers to the level of other regular workers, thus creating a third category in the workplace – regular workers without the wages and benefits of regular workers (Kwon, 2010). According to the Korea Federation of Trade Unions, the non-regular workers converted to regular status are paid two-thirds as much as other regular workers.
- 32% were considered non-fixed-contract workers, regardless of whether their employers took action to change their contract.
- 45% did not have their contracts renewed. As expected, the limit on temporary workers led to large-scale termination of contracts, as many firms opted to end the contracts of those nearing the two-year limit rather than elevate them to regular status (*Korea Labor Review*, November-December 2011).

The 6% increase in the number of non-regular workers between 2006 and 2011 indicates that the 2007 reform has not reduced the number of non-regular workers, even though their share of employment has fallen, and the labour market remains severely segmented. At the same time, there has been a diversification in the types of non-regular workers, away from fixed-term contracts and towards part-time and atypical work.[7] In sum, the 2007 reform has helped the fixed-term workers who are now considered to be

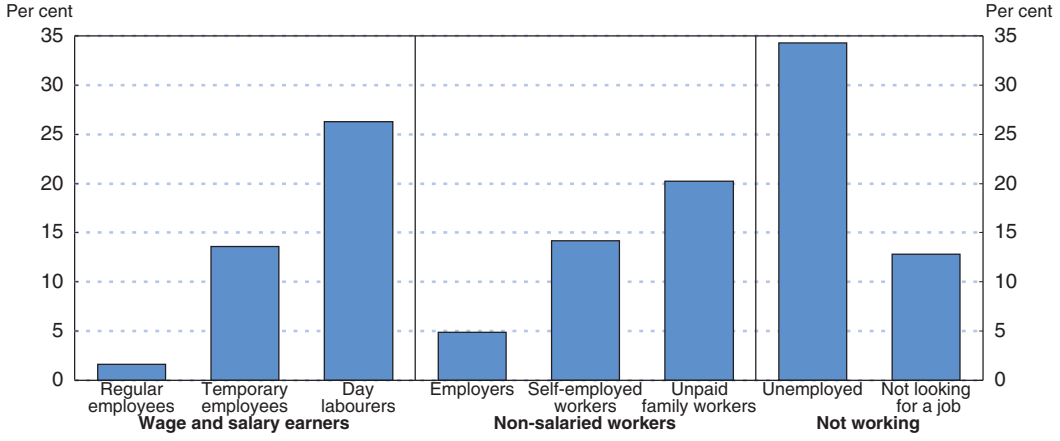
non-fixed-term workers. The key question is the outcomes for the 45% whose contracts are terminated before the two-year limit is reached. If they are not hired by another firm or find self-employment, the 2007 reform would boost unemployment while lowering the employment rate. Even if total employment is maintained, the 2007 reform substantially increases job instability for the largest group of non-regular workers. In other words, the increased transition to regular status for some fixed-term workers comes at the cost of greater job instability for a larger share of fixed-term workers.

Problems associated with the high share of non-regular workers

Increasing the share of regular workers would have the advantages of promoting job stability and firm-provided training, while enhancing the development of social insurance systems. On the other hand, the persistently high share of non-regular workers benefits firms, in terms of labour costs and flexibility, and accommodates workers who prefer more flexible work patterns. However, dualism has a number of negative effects, which are discussed in this section.

First, it increases wage disparity and relative poverty. As noted above, non-regular workers are paid 42.7% less than regular workers, due in part to discrimination. The fact that most non-regular workers do almost the same tasks as regular workers and work the same hours makes the wage differential problematic (Kim, 2010). Indeed, more than a quarter of full-time workers in Korea earn less than two-thirds of the median wage, the highest share in the OECD area, thus fuelling inequality. The low wages of non-regular workers has been a key factor in the rise in the Gini coefficient and relative poverty. According to a recent study (Lee, 2011), 20% of non-regular workers are in relative poverty. In addition, a 2009 study found that the rate of poverty among the working-age population was only 1.5% for regular workers, but as high for 13.5% for temporary employees and 26.3% for day labourers (Figure 3.7).

Figure 3.7. **Poverty rate among working-age population in 2006 by employment status**[1]



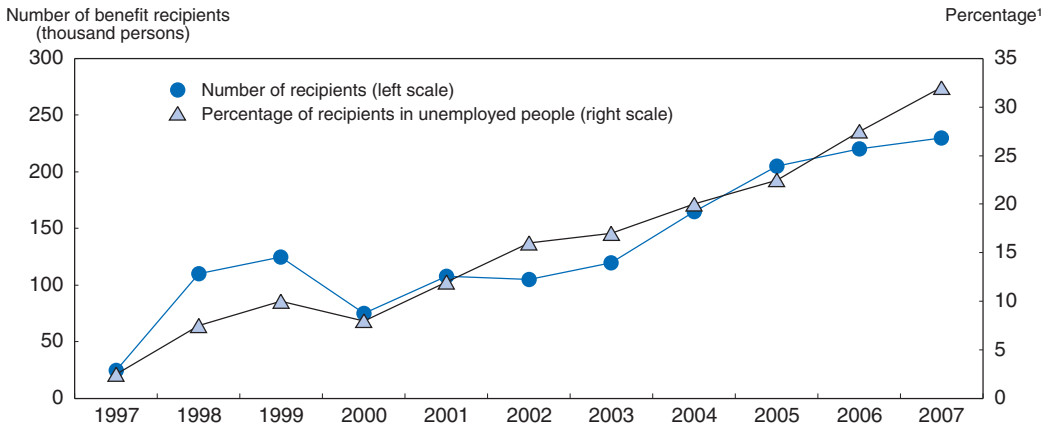
1. The poverty rate of the entire sample was 11.1%.
Source: No *et al.* (2009).

StatLink http://dx.doi.org/10.1787/888932593059

Second, equity concerns are exacerbated by the low share of non-regular workers covered by social insurance, as noted above. The legal framework requires nearly all

workers to be covered by the social insurance system, including the Employment Insurance System (EIS).[8] In practice, however, there is a large gap between the statutory coverage and actual coverage, with many non-regular workers excluded (*Korea Labor Review*, March-April 2009). Indeed, in 2011, only 38% and 44% of non-regular workers were enrolled in the NPS and NHI, respectively, at their workplace, while 42% were enrolled in the EIS. Gaps in coverage thus reflect weak compliance, particularly among small firms. While the share of unemployed receiving benefits has risen from 7% in 2000 to over 30% in 2007 (Figure 3.8), the limited coverage of the EIS undermines its effectiveness, including in its other activities, such as paying for training and maternity leave. Weak coverage helps to explain why public social spending was only 7.6% of GDP in 2007.

Figure 3.8. **Coverage of unemployment insurance**



1. As a share of total unemployed.
Source: Korea Labor Review, March-April, 2009.

StatLink http://dx.doi.org/10.1787/888932593078

Entrenched dualism creates conflicts between regular workers (the insiders) and non-regular workers (the outsiders). Many unions do not allow non-regular workers to join and few seek to represent them, given that non-regular workers are substitutes for regular workers (Kim, 2010) and thus pose a risk to the job security of union members. Enterprise-based collective bargaining agreements thus, in general, do not cover non-regular workers. Companies with unions have higher shares of non-regular workers, suggesting that they are particularly valued for employment flexibility. Including non-regular workers in unions may help reduce inequality between regular and non-regular workers (Choi *et al.*, 2012).

Policies to address labour market dualism

Five years after the labour law reform, the share of non-regular workers remains high at one-third and job instability has increased. The government announced legislation in 2009, which is still pending, to relax the 2007 reform by extending the maximum length of employment for fixed-term workers from two to four years. Such a reform would reduce job instability by reducing the turnover of fixed-term workers and the concentration of workers in more vulnerable types of non-regular employment. In addition, the government proposed an increase in the number of sectors and job categories in which temporary worker agencies are allowed to operate, given criticism from firms that current laws are too restrictive (KEF, 2011). The government should replace the "positive-list system", which

limits such workers to certain occupations and industries, to a "negative-list system", which allows them in general, except in certain cases. Although lengthening the limit for using non-regular workers will benefit firms and promote employment stability, it will not address the dualism problem.

The government announced in September 2011 the "Comprehensive Non-regular Workers Initiative" to address dualism, primarily by strengthening the social safety net and enhancing equal treatment for non-regular workers:

i) Subsidising SME contributions to social insurance systems to expand the coverage of their employees, including non-regular workers. Subsidies, set at one-third of the contributions to the EIS and NPS, will be given for employees who work at least 15 hours a week in a firm with fewer than five workers and earn no more than 120% of the minimum wage.

ii) Strengthening employment conditions, in part by better enforcing the minimum wage and by broadening the coverage of social insurance to include special types of employment, such as delivery vehicle drivers.

iii) Expanding vocational training opportunities for non-regular workers and promoting the transition to regular employment.

iv) Upgrading the inspection of labour conditions to encourage balanced treatment of regular and non-regular workers.

While this initiative will help improve conditions for non-regular workers, breaking down dualism requires a comprehensive approach that weakens the incentives that encourage firms to hire non-regular workers, notably by relaxing employment protection for regular workers, expanding the social insurance coverage of non-regular workers by improving compliance and increasing training opportunities to enhance their employment prospects.

Relax employment protection

A key is to relax effective employment protection for regular workers to lower its cost so that firms can achieve their desired flexibility without depending as much on non-regular workers. Although Korea has promoted labour market flexibility since the 1997 Asian crisis, the OECD index of employment protection for regular workers in 2008 was 2.3, compared to the OECD average of 2.1. Moreover, it was far above countries such as the United States (0.6), Canada (1.2) and the United Kingdom (1.2).[9] Recent OECD research shows that increasing employment protection has a significantly negative impact on GDP per capita, with no conclusive impact on total labour income equality (OECD, 2012).

Moreover, employment protection for regular workers is exacerbated by its ambiguity. The 1998 revision of the labour law to allow collective dismissals for "urgent managerial reasons" has not sufficiently enhanced flexibility in practice, in part, due to certain requirements. In particular, firms must exhaust "all means" to avoid dismissals on economic grounds and discuss proposed dismissals for at least 50 days with workers in an effort to avoid them. In addition, for dismissals based on "managerial reasons", the firms must send a report to the Minister of Employment and Labour 30 days in advance, which includes the reason of dismissal, issues discussed with worker representatives, and a dismissal schedule. The unpredictability of the strong procedural requirements boosts the cost and uncertainty for firms, thus discouraging them from hiring regular workers. Indeed, international evidence suggests that the creation of temporary jobs is a common

response by firms to high costs of reducing permanent jobs (Kahn, 2010). Changing the labour law to accelerate and simplify the procedures would enhance employment flexibility. In addition, reducing uncertainty by clearly specifying the compensation required for dismissed workers in Korea would increase predictability. In 2008, 22 OECD countries required payments for dismissed workers, ranging from eight weeks of salary to 20 months for a worker with 20 years of tenure.

Expand social security insurance coverage

The liberalisation of employment protection should be accompanied by increased coverage of non-regular workers by workplace-based social insurance systems. Many non-regular workers and their firms choose not to participate in social insurance schemes, given the high financial burden and frequent job changes. While the coverage of social insurance is increasing, further efforts to ensure compliance with social insurance premium payments, notably at small firms, are needed. Such measures would narrow the gap in labour costs between regular and non-regular workers, thus reducing incentives to hire non-regular workers, while improving their welfare. As noted above, having the National Tax Service collect social insurance contributions would increase compliance.

Increase opportunities for vocational training

It is important to increase training opportunities for non-regular workers as firms invest less in their training. Expanded vocational training and career consultation outside firms would enhance the employment prospects of non-regular workers and facilitate their transition to regular status. Indeed, one study reported that the probability of making the transition from non-regular to regular jobs is significantly higher for non-regular workers who attend training programmes (KDI, 2009). In 2011, the "My Work Learning Card System", an individual training account that was available only to unemployed persons, was extended to non-regular workers to expand their training opportunities.

Reforms in the education system to promote social cohesion

In 1945, Korea's literacy rate was 22% and less than 20% of children attended secondary school. Thanks to large public investment in schools, enrolment rates reached 90% for primary school in 1964, for middle school in 1979 and high school in 1993. In addition to boosting economic growth, the emphasis on universal access to primary and secondary schools promoted social mobility and income equality (Koh *et al.*, 2010). However, some aspects of the education system today should be improved, given that policies that promote equal access to education help reduce inequality (OECD, 2012). *First*, greater investment in early childhood education and care (ECEC) would provide a better educational foundation for children from low-income households. *Second*, the widespread use of private tutoring, notably in private institutions known as *hagwons*, perpetuates inequality. *Third*, the low level of student loans and grants despite high tuition fees limits the access of students from low-income households to high-quality tertiary education. This section discusses reforms in each of these areas to improve equity.

Improving access to high-quality early childhood education and care

Childcare and kindergartens enrolled 61.6% of the under-six age group by 2009 (Table 3.5). The enrolment rate in childcare peaks at 54.4% for two-year-olds, then falls as an increasing share of children switch to kindergarten. For the three-to-five age group,

Table 3.5. **Enrolment in childcare and kindergarten**

Thousand children in 2009

Age	Number of children (A)	Childcare (B)	Rate (B/A)	Kindergarten (C)	Rate (C/A)	Total enrolled (B + C/A)	Employment rate of mothers
0	424.5	107.5	25.3	0.0	0.0	25.3	24.7
1	464.3	198.8	42.8	0.0	0.0	42.8	29.2
2	492.5	268.0	54.4	0.0	0.0	54.4	39.2
0~2	1 381.3	574.4	41.6	0.0	0.0	41.6	29.9
3	447.4	228.0	50.9	111.5	24.9	75.9	44.4
4	434.7	193.9	44.6	181.4	41.7	86.4	44.8
5	473.1	152.4	32.2	244.7	51.7	83.9	46.0
3~5	1 355.2	574.3	42.4	537.6	39.7	82.0	44.9
0~5	**2 736.5**	**1 148.7**	**42.0**	**537.6**	**19.6**	**61.6**	**35.8**

Source: Suh and Kim (2010).

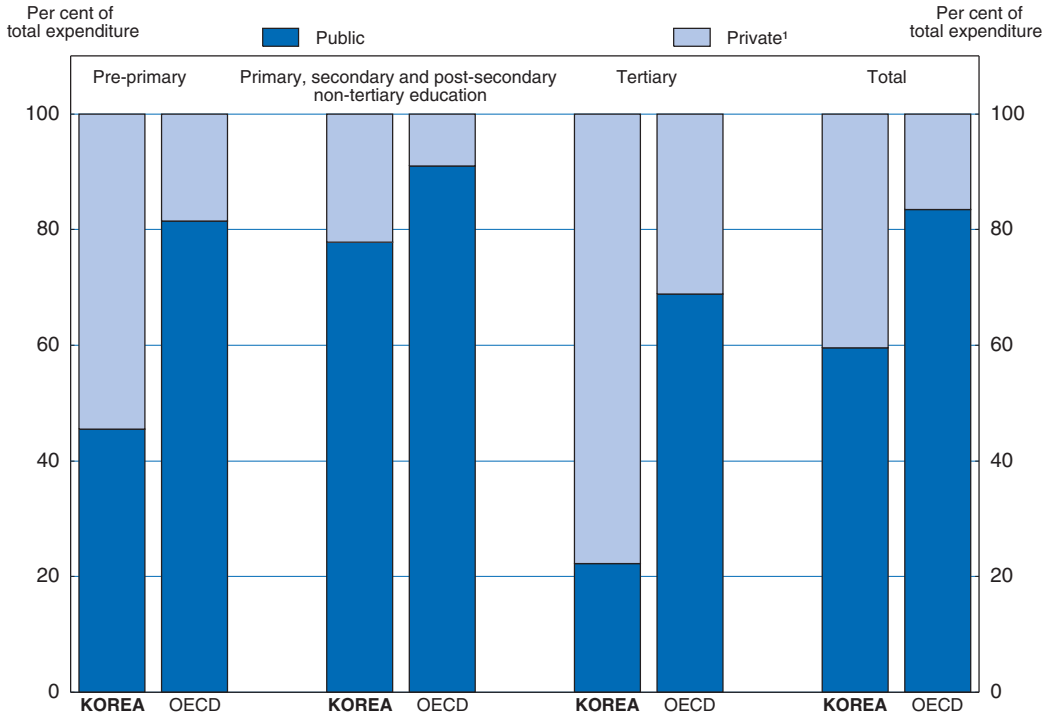
enrolment is evenly split with about 40% each attending childcare and kindergarten. The two systems remain segmented, with separate facilities and different objectives and curricula (Rhee *et al.*, 2008). The educational quality of kindergarten, under the Ministry of Education, Science and Technology (MEST), is considered superior to that of childcare, which is administered by the Ministry of Health and Welfare (MHW) and has more of a social-welfare orientation. In a survey of parents, 78% replied that there are significant differences between kindergarten and childcare, with educational content and programmes the most important (Yoo *et al.*, 2008).

Total spending on pre-primary education in Korea was the second lowest in the OECD area in 2008, with the public sector accounting for less than half, well below the OECD average of 82% (Figure 3.9). Public spending on childcare amounted to 0.4% of GDP in 2009, below the OECD average of 0.6%. Private institutions play the dominant role in ECEC, accounting for 89% and 77%, respectively, of childcare and kindergarten enrolments in 2009. Quality is higher, though, in public institutions.

The tuition fees for ECEC vary widely between institutions and regions, as the 16 metropolitan city and provincial governments set fees for public institutions and impose fee ceilings on private childcare centres. In Seoul, for example, monthly basic fees in 2010 for four and five-year-olds ranged from 115 thousand won (around $100) for public kindergartens to 172 thousand won for public childcare, 238 thousand won for private childcare and up to 540 thousand won for private kindergartens, which do not face price ceilings. The government has been steadily increasing ECEC subsidies to families:

- Eligibility for the means-tested subsidies introduced in 1991 was gradually expanded to cover the lower 70% of the income distribution by 2009, with the subsidy covering between 30% and 100% of basic childcare fees (Suh and Kim, 2010). For children eligible for the 100% subsidy, childcare fees were reduced to 4.6% of household income, compared to 9.6% for those with incomes too high for subsidies (Table 3.6). In 2011, the subsidy was raised to 100% of basic fees for all households in the lower 70% of the income distribution.
- The government's 1997 goal to provide support for all five-year olds regardless of family income was achieved in 2012. It recently announced an objective of extending such support to all three and four-year-olds beginning in 2013.

Figure 3.9. **International comparison of private spending on education in 2008**



1. For primary, secondary and tertiary education, based on full-time equivalents. The figures do not include spending on private after-school institutions, such as *hagwons*.

Source: OECD (2011c), *OECD Education at a Glance 2011*.

StatLink http://dx.doi.org/10.1787/888932593097

Most families receiving the means-tested subsidies send their children to childcare centres, reflecting several factors: *i)* they are considerably cheaper than private kindergarten, whose basic fees run as high as three times the government subsidy, which is based on public childcare; *ii)* there is a lack of capacity in public kindergartens; *iii)* childcare centres tend to be more conveniently located because there are more than four times as many childcare centres as kindergartens; and *iv)* they are more convenient for working parents as they have longer hours and stay open year-round, in contrast to kindergartens, which operate about 180 days a year. As a result, families at lower socioeconomic levels and working mothers tend to resort to childcare, while middle and

Table 3.6. **Childcare fee by exemption status**

Thousand Korean won and per cent in 2009

Fee status	Share of children	Basic fee	Additional fees	Total cost	Share of household income
Exempted[1]	35.0	10.7	44.3	55.0	4.6
Reduced	36.0	108.5	56.7	165.2	7.8
General	29.0	246.8	61.8	308.6	9.6
Total	**100.0**	**114.3**	**53.8**	**168.1**	**7.4**

1. Parents still pay some basic fees as the cost at some private childcare institutions exceeds the amount of the subsidy.

Source: Suh and Kim (2010).

upper-income families tend to place their children in kindergarten and *hagwons* (Yun, 2009), thus perpetuating inequality.

A large number of children attend *hagwons*, instead of or in addition to childcare and kindergarten. *Hagwons* are primarily focused on academic subjects, particularly foreign languages and mathematics, reflecting intense competition beginning at a young age. Indeed, providing "differentiated programmes to help distinguish one's children from other children" was the main reason, cited by nearly half of parents in a survey in Seoul and Gyeonggi, for enrolling children in *hagwons* rather than childcare and kindergarten (Lee *et al*., 2009). Another survey found that the average age for beginning English classes is 3.7 years in Seoul and Gyeonggi province, with some children beginning before age two (*Korea Herald*, 30 August 2011). The emphasis on starting education at an early age stands out even relative to other Asian countries (Child Research Net, 2010).

The exceptionally low level of public spending on ECEC in Korea and the high share of private outlays makes the quality of ECEC dependent on a household's income level, thus limiting the opportunities for low-income children. Consequently, children enter primary school with varying levels of education. While the drive to provide support for ECEC to all children aged three to five promotes higher enrolment and eases the burden on families, it does not create equal opportunities for high-quality educational opportunities, which would instead require other policies. *First*, increasing the capacity of public kindergartens would improve access for low-income families. The 2010 revision of the kindergarten law allows kindergartens to be attached to primary or secondary schools. With falling enrolments, schools presumably will have empty classrooms that could be used for kindergartens. Moreover, it should be mandatory for new primary schools in urban areas to include kindergartens. *Second*, higher tuition subsidies for low-income families would improve their access to private kindergartens. Policies to upgrade the overall quality of ECEC are discussed in Chapter 1.

Reducing the reliance on private tutoring: addressing the issue of hagwons

After-school education has been a major factor behind the excellent performance of Korean students in international tests, such as PISA (Koh *et al*., 2010). In 2010, around three-quarters of students participated in such courses (Table 3.7). According to the PISA assessment of 15-year-old students, the participation is more than double the OECD average in every subject (Figure 3.10). Indeed, Korea ranks first in the share of students studying mathematics and science and second (after Japan) in national language. Academic subjects account for four-fifths of private tutoring with the remainder divided between music, art and sports. Among academic subjects, English (41%), mathematics (35%) and Korean (11%) were the most important. More than 70% of students participating in private tutoring attend *hagwons*, making it the most important player in this sector. It is not uncommon for students to be enrolled in several *hagwons* focusing on different subject areas. Korea currently has nearly 100 thousand *hagwons,* which must receive a permit from the local education government to operate. The concentration of around 6 000 *hagwons* in the Kangnam district of Seoul is thought to be an important factor in the high housing prices in that area, which has become a major social issue. The *hagwons* have more teachers than the public school system and attract the best ones with higher salaries. Admission to prestigious *hagwons* is challenging and depends on entrance exams.[10] In addition to *hagwons*, private tutoring includes individual or group tutoring and Internet and distance learning.

Table 3.7. **Private, after-school education in Korea in 2010**

	Participation rate (%)	Expenditure per student[1]	Share of income[2]	Expenditure per student[3]	Share of income[2]	Total expenditure (trillion won)	Share of GDP (%)
Total	**73.6**	**240**	**7.9**	**325**	**10.7**	**20.8**	**1.8**
Primary school	86.8	245	8.1	282	9.3	9.7	0.8
Middle school	72.2	255	8.4	352	11.6	6.0	0.5
High school	52.8	218	7.2	408	13.4	5.1	0.4
General high school	62.0	265	8.7	433	14.3	4.8	0.4
Vocational high school	33.7	67	2.2	246	8.1	0.4	0.0

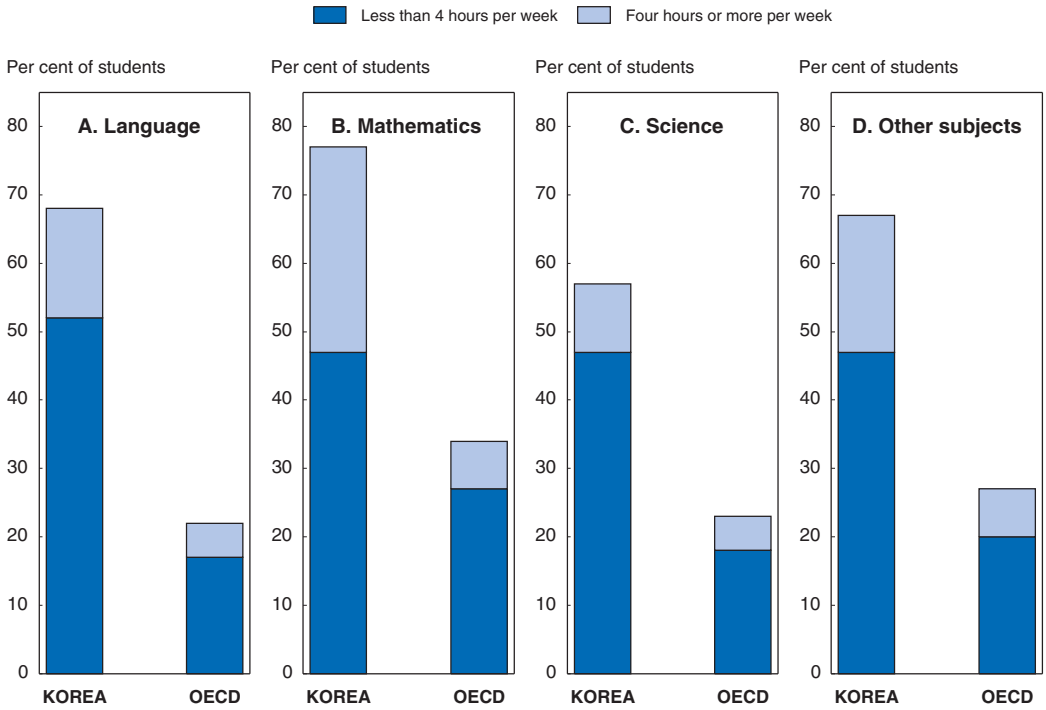
1. For all students in thousand won per month, regardless of whether they participated in private, after-school education.
2. As a per cent of average household disposable income, based on 2.84 persons per household.
3. Per student that participates in private, after-school education in thousand won.

Source: Ministry of Education, Science, and Technology (2011).

Total spending on private tutoring in 2010 fell 3.5% in nominal terms from 2009, reflecting a decline in participation from 75.0% of students to 73.6%. Outlays per student participating in private tutoring, though, rose by 1.2%. Total spending increased from 1.2% of GDP in 1999 (Ministry of Education, 2000) to 1.8% in 2010, representing 7.9% of average household disposable income (Table 3.7). A family with three children could thus spend a quarter of their income on private tutoring (Box 3.1).

Figure 3.10. **The percentage of students attending after-school lessons in Korea is exceptionally high**

By hours per week in 2009



Source: OECD (2010c).

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Box 3.1. **Why parents send their children to private, after-school lessons**

A 2010 government survey asked parents the reasons for high spending on private tutoring (Table 3.8).

- The most common answers focused on the difficulty and importance of gaining entry to prestigious universities, which select students primarily based on entrance exam scores. Academic credentialism – the emphasis on where a person studied rather than on their abilities, accomplishments and potential – is strong in Korea, based on a well-known ranking of universities (Chang, 2009).
- Parents are increasingly well educated and have high expectations for their children. With the fall in the birth rate and rising incomes, they have more resources to spend per child.
- The weakness of schools is cited in five of the top responses. In particular, schools are criticised for failing to fully develop students' potential, providing insufficient academic support and individualised teaching and having an unsatisfactory atmosphere. The deterioration of the classroom environment has become a widely discussed phenomenon called "school collapse" (Kim, 2003). Private tutoring compensates for schools' shortcomings and provides services tailored to students' individual needs.
- However, the fifth-most highly ranked reason – that not attending *hagwons* would place their children at a competitive disadvantage – suggests that private tutoring would play an important role regardless of the quality of schools.

Table 3.8. **Reasons for increasing private tutoring**

Five-point scale[1]

Rank	Reasons	Score
1	The name of the university one graduates from is important for future job prospects	4.2
1	Special purpose high schools and universities select students based primarily on their test scores	4.2
3	Universities have a severe ranking system for admission	4.1
4	Parents have higher expectations for their children as they have higher levels of education and fewer children due to the low birth rate	4.0
5	School tests are more difficult than what students learn in regular classes	3.9
5	School education alone cannot develop students' potential and aptitude	3.7
5	Not participating in *hagwons* worries parents and students, given that *hagwons* are so prevalent	3.7
5	Economic growth and higher incomes facilitate increased spending	3.7
9	Schools fail to provide tailored learning support to individual students	3.4
9	Schools fail to provide lectures that are differentiated according to students' academic level	3.3
9	Schools provide insufficient support for academic progress, counselling and information	3.3
12	Classroom atmosphere and school equipment are not satisfactory	2.7

1. Survey that asked parents to rank factors responsible for the increase in private tutoring.

Source: Ministry of Education, Science, and Technology (2011).

Participation in private tutoring by students in the top 30% of their class is over 80%, compared to less than 50% in the bottom 20% (Table 3.9). Moreover, outlays per student for the upper group are more than double those for the lower group. In short, participation in private tutoring appears to contribute to successful educational outcomes for parents able and willing to purchase such services for their children.

Participation and spending on private tutoring are highly correlated with family income (Figure 3.11). Only 36% of students from families with a monthly income of less than 1 million won participated in private tutoring, compared to 80% for those from

Table 3.9. **Participation and spending in private tutoring rises with academic performance**

Student's class ranking	Participation in private tutoring (per cent)			Spending per student[1]		
	2009	2010	Change[2]	2009	2010	Change[2]
Top 10%	87.0	85.3	–1.7	319	317	–0.6
11 ~ 30%	84.9	83.9	–1.0	283	282	–0.4
31 ~ 60%	75.3	73.8	–1.5	232	233	0.4
61 ~ 80%	60.7	59.8	–0.9	184	182	–1.1
Bottom 20%	50.4	48.8	–1.6	139	136	–2.2
Total	**75.0**	**73.6**	**–1.4**	**242**	**240**	**–0.8**

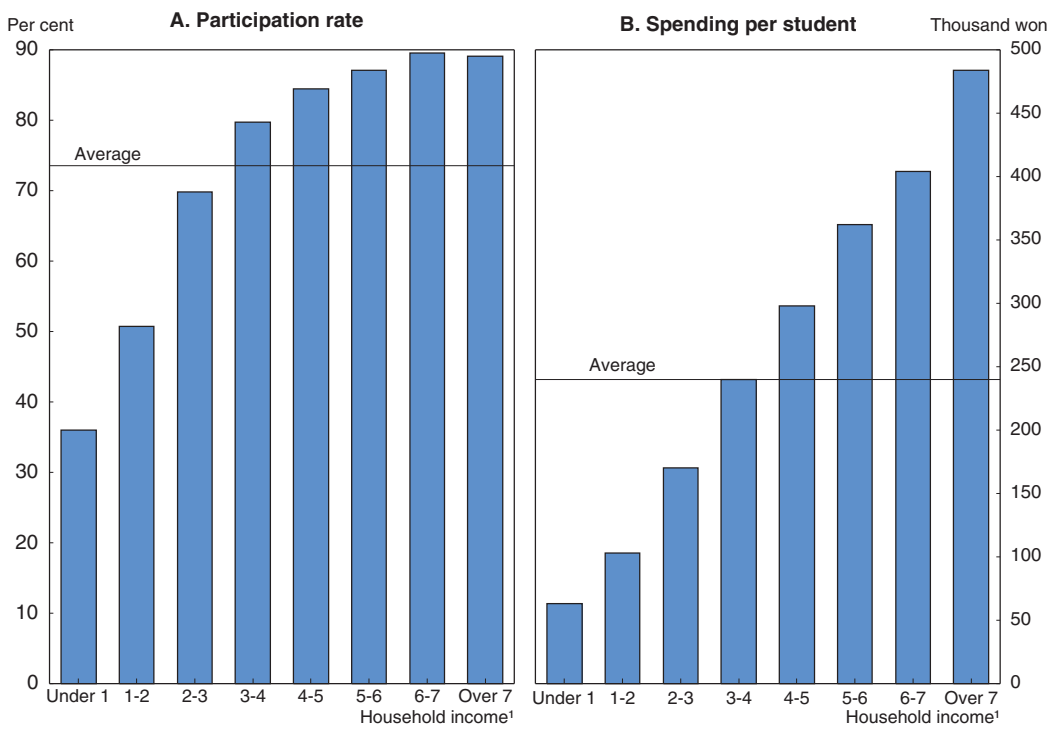
1. Monthly outlays on private tutoring per student (all students, including those not involved in such education) in thousand won.
2. In percentage points.

Source: Ministry of Education, Science and Technology (2011).

families earning 3 to 4 million won. Similarly, the amount of outlays per student in private tutoring is four times higher for the middle-income group than those in the lowest-income group. For households with income over 6 million won per month, enrolment rates rise to nearly 90%, while outlays per month reach around 450 thousand won (around $400).

While Korea places a high value on egalitarianism, policies to promote equal opportunity are undermined by the heavy reliance on private tutoring to enter high-ranking universities, which has an inordinate impact on job prospects and future income

Figure 3.11. **Household income and participation and spending on private tutoring in 2010**



1. In million won per month.

Source: Ministry of Education, Science, and Technology (2011).

StatLink http://dx.doi.org/10.1787/888932593135

(Kim and Lee, 2003). The higher participation and spending on private tutoring thus allows family income to determine access to higher education, creating cycles of poverty and wealth that endure over generations.

- The poorer a student's background, the more likely he or she is to attend college rather than university.
- The dropout rate from college (8%) is double that for university (4%).
- A student with a better socioeconomic background is more likely to enter a prestigious university and study a subject that he or she would like to. One study found that 16.9% of students from the upper-middle income class attended upper-level universities compared to only 5.8% for lower-class students. For lower-level universities, the situation is reversed, with a much larger share of students from lower-income class households (KEDI, 2006).

While the expansion of tertiary education opened the door to higher education for a larger share of the population, low-income students are concentrated in the low-ranking universities. It is important to address this source of inequality.

In addition to the heavy financial burdens on families from private tutoring and the impact on equality, there are a number of other disadvantages. *First*, to the extent it duplicates school curricula, private tutoring absorbs resources that could be used more efficiently elsewhere. *Second*, even in Seoul, where there is a 10 p.m. curfew for *hagwons*, private tutoring tends to unduly dominate children's lives and restrict their leisure activities in ways that are detrimental to their well-rounded development. *Third*, private tutoring disrupts schools and undermines them by allowing some students to move ahead of their classmates, thus reducing their interest in school (Bray, 2009). Indeed, nearly half of students participating in private tutoring said that one of the reasons was to have access to advanced studies. These problems explain why private tutoring has been described as the "enemy of the public school system" (Chung, 2002).

Policies to reduce reliance on hagwons and other forms of private tutoring

The government has long tried to limit the role of *hagwons* and other forms of private tutoring. One of the first steps was the equalisation policy, which attempted to end "entrance exam hell" by abolishing competitive exams for middle school in 1969, and for high school in 1974. Instead, students in urban areas were allocated to schools in their district by a lottery system, thus eliminating a major reason for sending children to *hagwons*. In 1980, the government banned *hagwons* and other private tutoring on the grounds that they unfairly burdened the poor and promoted inequality. Students receiving tutoring could be suspended from school. While the reforms were generally welcomed by students and parents, the continued pressure to succeed academically simply drove the private tutoring industry underground. The ban was finally ruled unconstitutional by the Supreme Court in 2000 on the grounds that it "infringes on the basic rights of the people to educate their children". The government launched a five-year plan to improve the quality of schools by boosting the number of teachers and their salaries, purchasing computers and expanding English classes to compete with private tutoring. Despite the Supreme Court ruling, there have been subsequent attempts to limit private tutoring. In 2008, for example, there were measures to limit the cost of *hagwons* and Seoul imposed a 10 p.m. curfew on *hagwons*.

To achieve the government's goal of significantly reducing private tutoring, a number of policies are necessary, beginning with the criteria for university admission, including the College Scholastic Aptitude Test (CSAT). A major purpose of *hagwons* is to prepare students for the multiple-choice CSAT exam, which accounts for 70% of a student's high school ranking, compared to only 10% for the student's high school record (OECD, 2009). Reducing the importance of the CSAT in university admissions would thus reduce reliance on *hagwons*. Under the new "admissions officer" system to select university students, greater weight is given to other criteria, such as recommendations, essays and extra-curricular activities, as well as school grades in order to reform the test score-based admission practice. It will take time for the admissions officer system to gradually change students' mind sets over the long run. There is a need for caution, though, as a reliance on more subjective criteria opens up opportunities for favouritism and corruption, given the importance of social connections. The reliance on multiple-choice exams has provided legitimacy to the university entrance process.

The government survey discussed above also asked parents which policies would reduce spending on private tutoring (Table 3.10). *First,* a number of responses focused on improving the quality of schools, as it would enable students to acquire sufficient education without participating in private tutoring. Specific areas for improvement included strengthening the creativity and character-building aspects of schools, improving the teaching of English, better supporting underachieving students and using teacher evaluation systems. *Second*, parents noted the importance of creating diverse schools, an objective the government is pursuing through its plan to establish 300 "autonomous" high schools. *Third*, strengthening vocational education and career guidance would reduce private tutoring. This is also supported by the second-ranked objective of "changing students' and parents' view of education and giving more access to information". *Fourth*, providing all-day kindergartens would reduce reliance on *hagwons* for child care.

Table 3.10. **Policies that would reduce spending on private tutoring**

Five-point scale[1]

Rank	Policy	Score
1	Use tracking to separate students into classes based on their academic ability	4.0
2	Changing students' and parents' view of education and giving more access to information	3.9
2	Creating good and diverse schools	3.9
2	Strengthening the creativity and character-building aspects of education	3.9
2	Stabilising tuition fees of *hagwons*	3.9
6	Strengthening the teaching of English in public schools	3.8
6	Supporting underachieving students	3.8
8	Using on-line educations systems	3.7
8	Teacher evaluation systems	3.7
8	Disclosure of school information	3.7
11	Revitalising after-school programmes	3.6
11	Strengthening vocational education and career guidance	3.6
11	Supporting customised education service using IPTV	3.6
14	Moving students to different classrooms according to their achievements level during regular school hours	3.5
15	Provide all-day care classes	3.4

1. Survey that asked parents to rank policies that would reduce spending on private tutoring.
Source: Ministry of Education, Science, and Technology (2011).

The parent survey also suggested using tracking – separating students by ability levels – as a way of meeting the needs of individuals and reducing outlays for private tutoring. However, tracking, particularly at a young age, tends to increase inequality in educational outcomes (OECD, 2010a). Finally, there is support for stabilising *hagwon* fees. Given that *hagwons* are private enterprises providing heavily demanded services, government measures to limit their fees are likely to be difficult to implement.

Making after-school lessons more accessible to low-income students

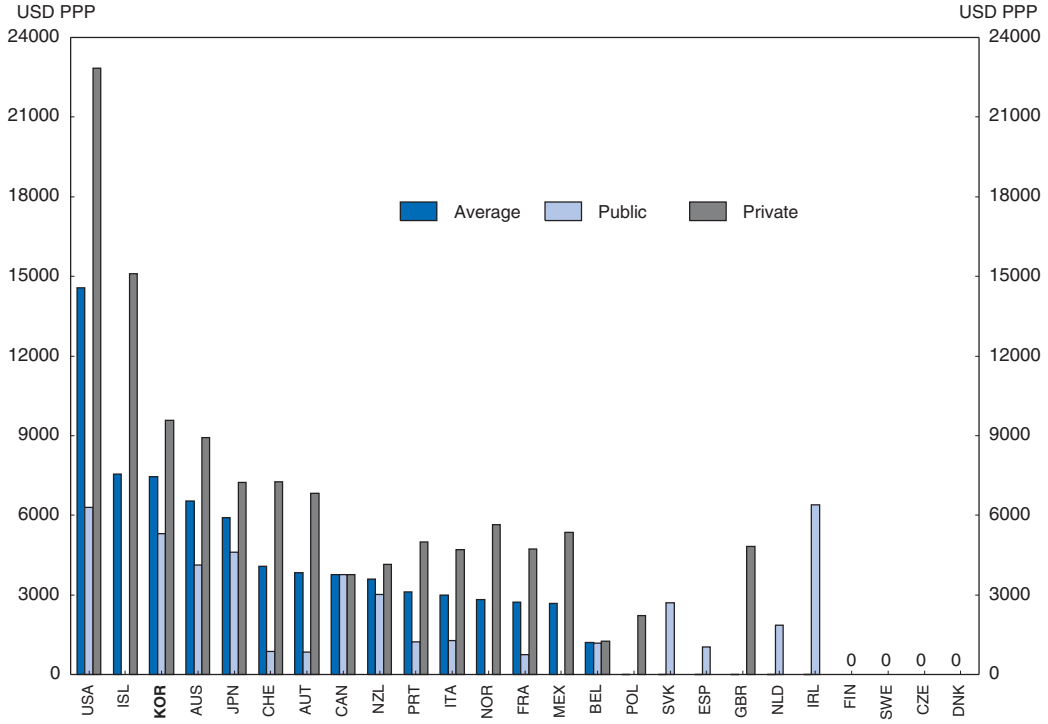
Even with reforms, private tutoring will continue to play a significant role, making it important to provide its benefits more broadly and at lower cost. The government survey discussed above mentioned three alternatives. *First*, on-line education systems are a rapidly growing component of the private tutoring service industry in many countries (Ventura and Jang, 2010) and tend to be much less expensive. In Korea about one-third of students participating in private tutoring use Internet lessons, including those offered by *hagwons,* and the government's Cyber Home Learning. The system, which has three million users, with 228 thousand visits per day, could be further expanded. The government estimates that it reduced private tutoring spending by 1.1 trillion won (5% of actual spending) in 2011. *Second*, the public Educational Broadcast System, established in 1990, provides lectures to high school students preparing for the university admission exam. This system had 3.9 million users in 2011, with about 694 thousand visits per day, cutting private tutoring spending by another 816 billion won.

In addition, the after-school programmes offered at virtually all primary and secondary schools could be further expanded to reduce outlays on private tutoring. The number of students participating in such programmes (both free and paid) rose from 43% when they were introduced in 2006 to 65% in 2011, with higher rates for low-income families and those in rural areas, who have less access to *hagwons*. Two-thirds of the instruction is provided by school teachers, who offer lessons that could not be covered in regular classes (Kim, 2010). An OECD study found that after-school classes with a teacher can enhance equity, in contrast to such classes with teachers from the outside (OECD, 2011e). Eight of the 16 metropolitan and provincial offices of education allow the programmes to be contracted out to for-profit organisations. Spending on private tutoring was reduced from an average of 3.5 million won to 3.0 million won for students participating in after-school lessons in schools.

Reducing the burden of tertiary education

The public-sector share of spending on tertiary education was only 22% in 2008, well below the OECD average of 69%. Private institutions, which account for around three-quarters of students, depend primarily on tuition fees. Consequently, tuition fees at private universities were the third highest in the OECD area at $9 586 (PPP exchange rates) in the 2008-09 academic year (Figure 3.12). Fees at the most expensive institutions were about double those at the least expensive. Although public university fees are lower at $5 315, they are still the third highest among OECD countries. At the same time, government scholarships and grants to students (6.0% of public spending on education) and student loans (5.4%) were well below the OECD averages of 11.4% and 8.8%, respectively (OECD, 2011a). In total, public subsidies to households for tertiary education in the 2008-09 academic year amounted to 0.1% of GDP, only one-third of the OECD average of 0.3% and the fifth lowest in the OECD. Consequently, a student's socioeconomic background is

Figure 3.12. **International comparison of university tuition fees**[1]



1. Full-time students at tertiary type A institutions in 2008-09. Tuition fees are not adjusted for fee waivers granted by institutions or for tax treatment of tuition fees.

Source: OECD (2011c), *OECD Education at a Glance 2011*.

StatLink http://dx.doi.org/10.1787/888932593154

significantly correlated with the quality of the tertiary institution that he or she attends. University tuition has become one of the most heated political issues in Korea. Student protests in 2011 coalesced around the slogan "half-price tuition". In June 2011, the ruling party proposed cutting tuition fees by 30% by 2014. In 2012, fees are to be reduced by 15% through 1.5 trillion won of government spending and requiring universities to increase grants by 0.5 trillion won.

The government has already taken several steps to address the tuition issue. *First*, the government put a ceiling on increases in university tuition beginning in 2011; the percentage increase in tuition cannot be more than 1.5 times higher than the average increase of the consumer price index during the previous three years. *Second*, it required universities to organise a tuition review committee that includes professors and students. *Third*, the government established the Korean Student Aid Foundation in 2009 to provide means-tested grants and to administer the major government-sponsored student loan schemes. The share of university students receiving scholarships because of their low-income background increased from 3.1% in 2009 to 4.4% in 2011. The amount per student, though, was less than one-half of the average tuition at a private university. The 2012 reform of the scholarship programme to reduce the burden of tuition fees created two types of grants,[11] boosting outlays from 335 billion won to 1.5 trillion won.

In addition, the government introduced in 2010 the "Study Now, Pay Later" programme of public loans for undergraduates who meet the grade requirement and are from households below the 70% income percentile. Repayment of the loan is contingent on post-

graduation income, thus helping to overcome the aversion to debt. Meanwhile, the income criteria for the regular government-guaranteed loan scheme, which was introduced in 2005 on a means-tested basis, was abolished, making the loans available to all students who meet the grade criteria. This scheme imposes a fixed-repayment schedule. With the introduction of the income-contingent loan programme, the number of students receiving loans under the regular programme has fallen by more than one-third, but the overall number receiving loans rose by 8% between the second semesters of 2009 and 2011 (Table 3.11). In contrast to scholarships, government loans cover more than 80% of the tuition at private universities.

Table 3.11. **Government-guaranteed loans for university tuition**

In billion won in the second semester of academic year

	2009		2010		2011			
	Number of students[1]	Amount	Number of students[1]	Amount	Number of students[1]	Amount	Amount per student[2]	Share of tuition[3]
Regular loan programme	331.5	1 201	248.2	885	209.9	767	3.7	88.2
Income-contingent loans[4]			117.7	405	148.3	499	3.4	81.3
Total	**331.5**	**1 201**	**365.9**	**1 290**	**358.1**	**1 265**	**3.5**	**85.3**

1. In thousands of students.
2. In million won.
3. In 2011. Tuition is calculated from the 2008 figure shown in *OECD Education at a Glance*, adjusted by the CPI index for 2011.
4. Introduced in 2010 for students from low-income families. This programme is also referred to as "Study Now, Pay Later".

Source: Ministry of Education, Science and Technology.

While politically popular, half-price tuition would have a number of drawbacks. *First*, universally subsidising tuition fees could lead to even more students going to university, thereby exacerbating the problem of overemphasis on tertiary education and skill mismatches discussed in Chapter 1. *Second*, half-price tuition raises questions about value for money, as it would effectively subsidise low-quality institutions that should instead be restructured or closed. *Third*, subsidising the tuition fees for all students is less efficient and less equitable than targeting support on students from low-income households, who face larger hurdles in accessing tertiary education. *Fourth*, it could cost about 7 trillion won (0.6% of GDP).[12] Experience in other countries suggests it is very difficult to move away from universal subsidisation of tuition once it is in place. Caution is thus warranted given the long-lasting financial consequences. The government has appropriately sought to reframe the issue as part of a wider reform of the tertiary sector (Chapter 1).

The new income-contingent loan scheme, which is limited to the lower 70% of the income distribution, should be extended to all students, subject to their satisfactory academic progress. The government recently cut the interest rate on loans, exempted interest payments during military service and eased the grade point average requirement for eligibility. Such reforms should continue to increase access to the income-contingent loan programme. Making reimbursement dependent on post-graduation income is crucial. Otherwise, the loan take-up ratio would be limited by potential students' risk aversion. Moreover, some students may otherwise borrow less by taking a shorter, less costly course of study than is optimal. In addition, given the difficulties university graduates face in finding employment, reforms to increase the flexibility of outstanding fixed-repayment

student loans would be helpful. At present, around 80 000 students are delinquent in their repayments. Moreover, universities need to provide quality education for the scheme to be successful. Otherwise students will not be able to find a good job and earn enough money to pay back their loans. Finally, the government should consider whether the tax deductibility of tuition payments is the most equitable way to lighten the financial burden of tertiary education. Given that only half of the labour force pays income tax, and that many of them that do pay face only a 6% rate, tax benefits reduce the cost of tertiary education primarily for high-income families.

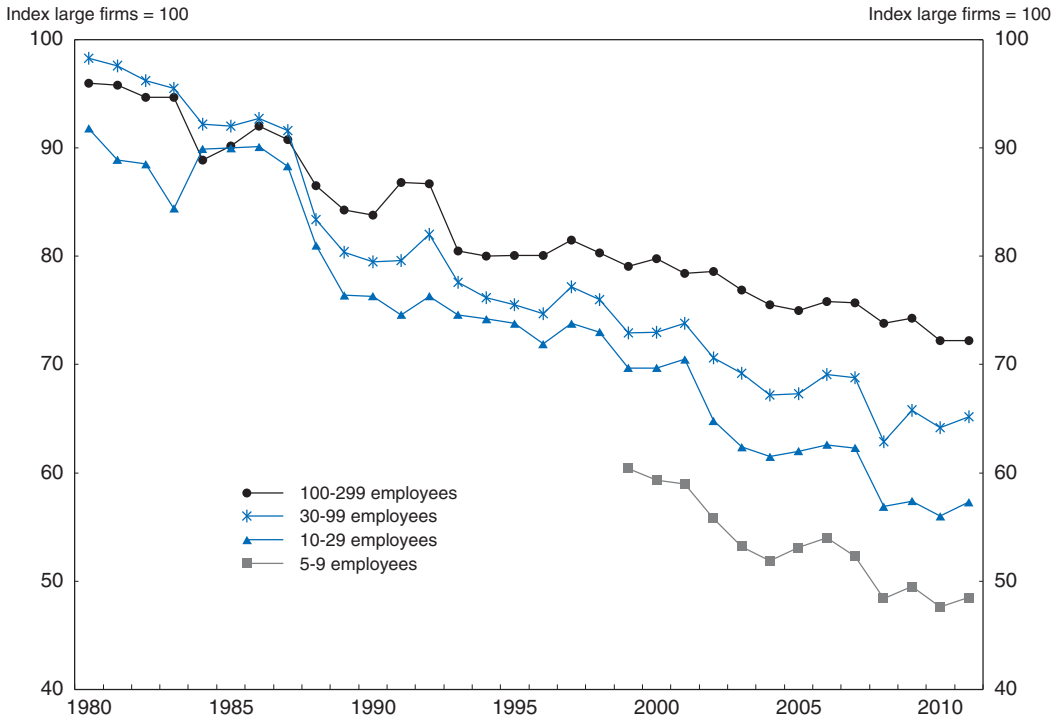
The service sector as a factor in inequality

Manufacturing's share of employment fell from 28% in 1990 to 17% by 2008, as workers moved to the service sector. The shift was accompanied by a marked fall in the relative wage in services from nearly 100% of that in manufacturing to only 54% in 2009. In addition, there is wide wage dispersion in the service sector, from business services and the financial sector to hotels and restaurants.

The low wage and productivity problem is closely linked to SMEs, which account for 80% of output and 90% of employment in services. The deteriorating wage performance in services has thus widened the gap between large and small firms (Figure 3.13). In 1989, workers in firms with 10 to 29 workers earned 24% less than workers at companies with 300 or more workers. By 2008, the gap had widened to 43%. Consequently, the problem of poverty among workers is concentrated in small companies (Table 3.12). The incidence

Figure 3.13. **Trends in wages by the size of firm**

Wages at firms with more than 300 workers = 100



Source: Statistics Korea.

StatLink http://dx.doi.org/10.1787/888932593173

Table 3.12. **Incidence of low wages by firm size in 2006**[1]

Firm size (number of workers)	1-4	5-9	10-29	30-49	50-99	100-299	300-499	500-999	1 000 and up
Male	18.8	7.5	5.2	3.5	3.3	2.3	1.8	1.8	0.7
Female	39.1	22.5	18.9	14.1	12.8	11.6	9.9	9.5	4.0

1. Low wage refers to wages below 50% of the median wage.
Source: Koh (2011).

of low wages (defined as less than one-half the median wage) falls from 39.1% of female workers in firms with less than five workers to 4.0% for companies with more than 1 000. Policies to boost productivity in services and in SMEs are discussed in Chapter 1.

Conclusion

Many of the policy recommendations, which are summarised in Box 3.2, would provide a double dividend in terms of boosting economic growth (Chapter 1) and fostering social cohesion. Recent OECD research shows that policies that reduce labour market dualism and improve access to education reduce income inequality while boosting economic growth (OECD, 2012). Moreover, these policies are important to mitigate the negative impact on equality from shifting the tax mix away from direct taxes on labour and corporate income towards consumption and property taxes. Policies to promote inclusive growth are a priority to reverse the rise in inequality and enhance social cohesion. Such measures should be carefully targeted so as to help maintain Korea's sound fiscal position and limit any negative impact on growth.

Box 3.2. **Summary of recommendations to promote social cohesion***

Well-targeted increases in social spending to address inequality and poverty

- Relax the eligibility conditions for the Basic Livelihood Security Programme and ensure adequate funding, while improving the work incentives of recipients.
- Expand the earned income tax credit by relaxing the eligibility conditions and aiming, in the long run, to include the self-employed.
- Target the Basic Old-Age Pension System on low-income elderly and increase the amount of the benefit, while promoting private savings for retirement by accelerating the introduction of company pensions.
- Ensure that National Health Insurance meets its goal of universal coverage and further lower the ceiling on co-payments to provide adequate care to low-income households and persons with chronic health problems.
- Gradually expand long-term care services by emphasising home-based care to contain cost increases, while enhancing their quality.

Labour market reforms to reduce labour market dualism

- Reduce employment protection in practice for regular workers so that firms can realise adequate employment flexibility without relying as much on non-regular workers.
- Expand the coverage of non-regular workers by workplace-based social insurance systems, notably by improving compliance, to improve their welfare and reduce the cost advantages of non-regular workers.

Box 3.2. **Summary of recommendations to promote social cohesion*** *(cont.)*

- Increase training and career consultation to enhance employability of non-regular workers and their transition to regular employment.
- Revise the 2007 non-regular law worker, which is increasing employment instability and leading to a concentration of non-regular workers in more vulnerable types of employment, by extending the time limit on fixed-term contracts.
- Relax regulations on temporary agency workers by moving from a positive-list system to a negative list.

Education reforms to promote equality

- Enhance the access of disadvantaged children to high-quality ECEC by increasing tuition subsidies for low-income children.
- Increase the capacity of public kindergartens by including them in primary schools.
- Develop the "admissions officer" system for universities to reduce the importance of the CSAT exam, thereby diminishing the role of *hagwons*.
- Reduce dependence on private tutoring, including *hagwons*, by improving the quality and diversity of secondary schools and strengthening vocational education and career guidance.
- Improve access to after-school tutoring by further expanding Internet and broadcast teaching systems and increasing the after-school programmes in schools.
- Expand student loans through the new programme that makes repayment contingent on income after graduation.

* Policies to raise productivity and wages in the service sector are included in Chapter 1.

Notes

1. The survey was a BBC World Service poll of 34 500 persons.
2. Their annual household gross income must be less than 17 million won (about $15 000) and assets, including real estate, cannot exceed 100 million won, meaning that EITC recipients cannot own a home.
3. A response provided to an OECD questionnaire.
4. The reform, which amended the Fixed-Term Employment Act and the Act on the Protection, etc. of Temporary Agency Workers, took effect in July 2007.
5. To address this problem, the Fixed-Term Employment Act and the Act on the Protection, etc. of Temporary Agency Workers have been amended. Under the revised law, which is to take effect in August 2012, labour inspectors have to encourage employers to correct any discrimination that may be found, even if there is no request from the workers. If the employers fail to remedy the situation, the case should be reported to the Labour Relations Commission.
6. The government has 341 thousand non-regular workers, of which about half are fixed-term workers. It announced in December 2011 that it intends, in principle, to give indefinite contracts to those who are engaged in permanent and full-time work. The number of eligible employees is estimated at 97 thousand (Korea International Labour Foundation, 2011).
7. The falling share of fixed-term workers and the rising share of other categories has slightly increased the average tenure of non-regular workers from 2.1 years in 2006 to 2.3 years in 2011.
8. The EIS in principle now covers all wage and salary earners in all establishments, except: *i)* part-time workers working less than 60 hours a month (or 15 hours a week); *ii)* government officials and employees subject to the Private School Teachers' Pension Act; and *iii)* workers over age 65.
9. The OECD index of the strictness of employment protection legislation for regular employment covers eight indicators related to the procedures involved in individual dismissal, such as the prior

notification requirement, severance pay provision, and remedial measures for an unfair dismissal. It runs from 0 (least restrictive) to 6 (most restrictive).

10. Only 14% of applicants for the Daesung Institute are accepted. After one year of study, 70% gain entrance to one of Korea's top three universities (*Time Magazine*, 3 October 2011).

11. Type I will be allocated to low-income students through universities. Students who qualify for the BLSP, the basic welfare programme that covers 3% of the population, will receive 4.5 million won per year. In addition, other students in the bottom 10% of the income distribution will receive 2.25 million won. Type II allows universities to support students in the bottom 70% of the income distribution based on their self-help efforts.

12. Given that a 15% reduction would cost 2 trillion won (*Korea Herald*, 23 June 2011), a 50% tuition reduction would cost around 7 trillion won, which is about 0.6% of 2011 GDP.

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