



“Better Policies” Series

K O R E A

POLICY PRIORITIES FOR A DYNAMIC,
INCLUSIVE AND CREATIVE ECONOMY

OCTOBER 2015



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Foreword

In 2016, Korea will celebrate its twentieth anniversary of OECD membership. In this time, it has achieved impressive convergence in living standards towards the Organisation's top performers. Fundamental to these efforts have been investment, innovation and human capital.

Korean students regularly rank among the best performers in the OECD's PISA tests, while the country is a leader in investment in research and development. At the same time, Korea has not been afflicted by the curse of rising inequality that has struck most other OECD members over the past decade. The level of income inequality remains slightly below the OECD average.

Korea's development strategy has served it well, but appears to be in need of re-engineering to face the social, economic and environmental challenges ahead. Korea's population will undergo the most rapid ageing of any OECD member over the next half century, putting pressure on public finances and underlining the necessity to boost productivity to secure sustainable long-term growth. This report identifies policy priorities to meet these challenges.

To leverage its position as a leading innovator, and thereby stimulate economic growth, President Park introduced the "creative economy" initiative in 2013, whose goals require harnessing the productive potential of Korea's private sector, in particular its lagging services sectors and smaller firms. There is scope to enhance the impact of Korea's substantial R&D investments, for example, by strengthening links between public research institutions and the private sector, as well as by improving the regulatory environment for innovative entrepreneurs. Smaller firms should also be encouraged to adopt information and communication technologies that allow them to seize the opportunities of the digital economy.

Meanwhile, the focus of the "creative economy" on green innovation, as part of the 2nd five-year-plan of Korea's National Strategy for Green Growth, can help reduce greenhouse gas emissions, an important objective in the context of implementing the Intended Nationally Determined Contributions (INDCs) to be agreed at COP 21 in December 2015.

Korea has been relatively successful in ensuring the benefits of development have been broadly shared, but challenges remain in terms of addressing old-age poverty and labour market duality. To keep Korea on an 'inclusive growth' path, 'win-win' reforms to increase growth and reduce inequality should be prioritised, such as encouraging female labour market participation and investing in skills relevant to labour market needs.

Of the recommendations identified in this report, and for which we have been able to quantify the likely impact, it is estimated that their implementation would increase the level of GDP by 2½ per cent over 10 years, generating around 180,000 extra jobs.

The OECD continues to work with the Korean authorities on these and other policy priorities and looks forward to the next two decades of fruitful collaboration in the design, development and delivery of better policies for better lives.



Angel Gurría
Secretary-General, OECD

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1. Introduction

Rapid growth has allowed Korea achieve impressive convergence with the living standards of top-performing OECD countries in recent decades. It is consistently among the top performers in terms of investment in research and development (R&D) and student performance in standardised tests, while income inequalities are less stark than in many OECD countries.

Economic growth in Korea has slowed in more recent years, however, while productivity is still only around half the level of leading OECD countries. Korea is also undergoing the most rapid population ageing process of any OECD country, which will reduce working-age population significantly and put pressure on public finances in the coming decades. These phenomena underline the importance of urgent policy action to raise productivity growth to put Korea on a stronger, more sustainable growth trajectory.

The Korean government has moved forward with the “Three-year plan for Economic Innovation” since 2014, as a part of its effort to secure the growth potential. Recent reforms, including this “creative economy” initiative, are important to unlocking the full productive potential of Korea’s science, technology, innovation and cultural ecosystems. Moreover, Korea has been a leading proponent of ‘green growth’, the country’s second 5-year national plan having been launched in 2014. Further easing the regulatory burden and fostering competition can stimulate innovative entrepreneurship and improve efficiency, particularly in key services sectors and among SMEs, whose labour productivity is only about a quarter of that of large firms, while their wages are about half.

Productivity growth and social inclusion can be mutually reinforcing. Encouraging more women to use their skills to more fully participate in economic life, for instance, can both boost growth and reduce income inequalities. Similarly, ensuring that workers’ skills are relevant to labour market demands can help people find better remunerated jobs while helping drive firms’ productivity growth. To address these challenges, this report identifies and quantifies reform priorities for inclusive growth in Korea.

Korea has been one of the fastest growing OECD economies over the past 25 years, boosting its *per capita* income from 39% of the average of the top half of OECD countries in 1991 to 75% by 2014 (Figure 1). Double-digit export growth in volume terms over that period has helped make Korea the seventh-largest exporter, and 15th-largest economy, in the world. However, the convergence of Korea’s living standards to those in the most advanced countries has stalled in more recent years, as output growth slowed from a 4% per cent annual pace over the decade 2001-2011 to 2% per cent since 2011.

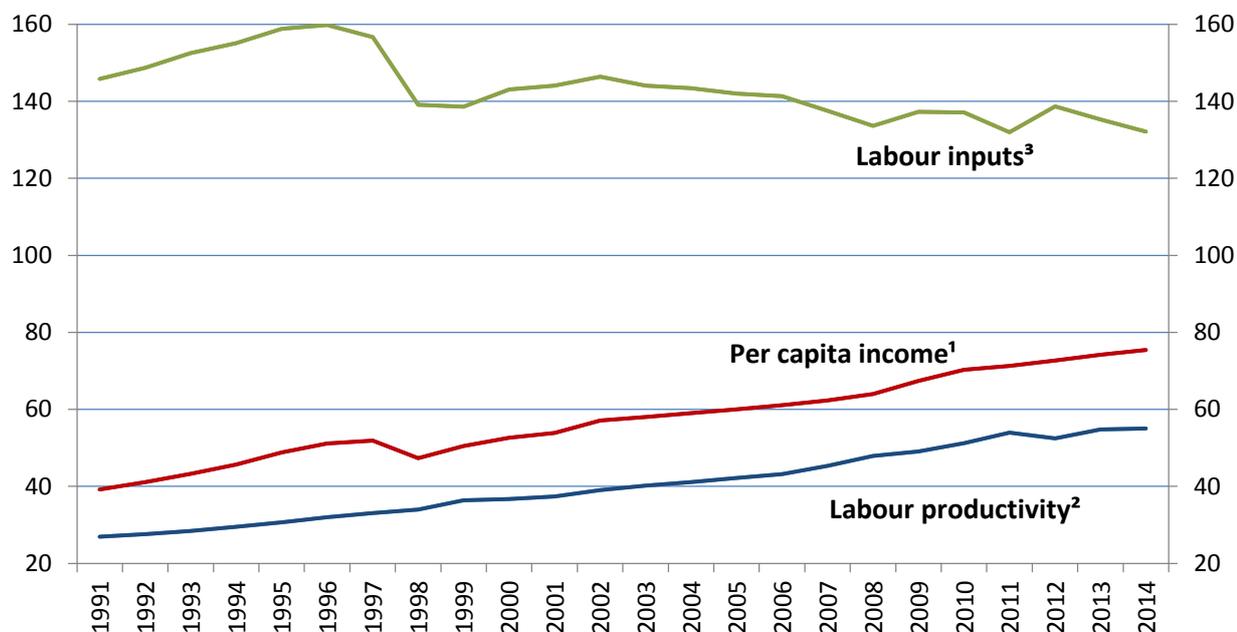
Strong competition with emerging economies, notably China, in low and medium-end markets, and with advanced economies in high-end markets, is making it more difficult for Korea to further expand its global market share. Exports, produced primarily by large firms affiliated with the business groups known as *chaebols*, are not having the same trickle-down impact as before on domestic demand and employment. Meanwhile, high household debt, stagnant service sector productivity and struggling small and medium-sized enterprises (SMEs) have constrained domestic demand.

Korea’s traditional, export-led growth strategy has also created a dualistic economy characterised by large productivity gaps between manufacturing and services, between large and small firms, and between the capital region and rural areas. Such gaps, combined with segmentation of the labour market between regular workers and low-paid non-regular workers, have contributed to higher income inequality now than during the high-growth era that ended in the mid-1990s, even if inequality has been relatively stable, if not falling marginally, over the past decade. At the same time, the relative poverty rate is now the eighth highest in the OECD area, but this hides differentiation in relative poverty rates by age. Poverty rates for

children and youth in Korea are below the OECD average, but around half of the over 66 population lived in poverty in 2013, about four times as high as for the general population.

While tertiary educational attainment among younger Korean adults is the highest in the OECD, a comparatively large proportion of them are not in employment, education or training (NEETs). Korea also has the widest gender employment gap in the OECD.

Figure 1. The convergence of Korea's *per capita* income to the highest income countries has stalled
Top half of OECD = 100



1. Per capita GDP using 2010 PPP exchange rates.

2. GDP per hour of labour input.

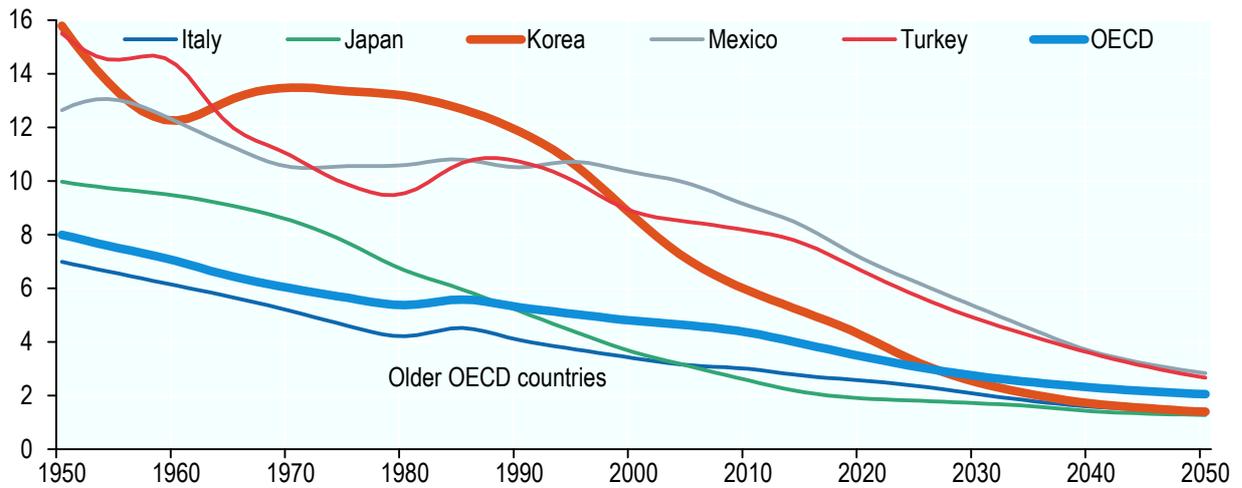
3. Total number of hours worked per capita.

Source: OECD Going for Growth Database.

Korea needs sustained growth to promote continued convergence to the highest income countries and to cope with population ageing, which is projected to be the fastest in the OECD. Indeed, Korea's population, currently the fourth youngest in the OECD, is projected to be the third oldest by 2050, partly due to the fact that the fertility rate is one of the lowest in the OECD. This implies a dramatic decline in the number of workers supporting those in retirement (Figure 2). Faster productivity growth is essential to off-set the expected decline in labour inputs as Korea's working-age population peaks in 2016 and working hours continue to decline toward the OECD average. A strong fiscal framework will also be needed to keep public debt low, while allowing automatic stabilisers to operate effectively and addressing the challenge of old-age poverty.

Figure 2. Convergence in the old age support ratio across the OECD

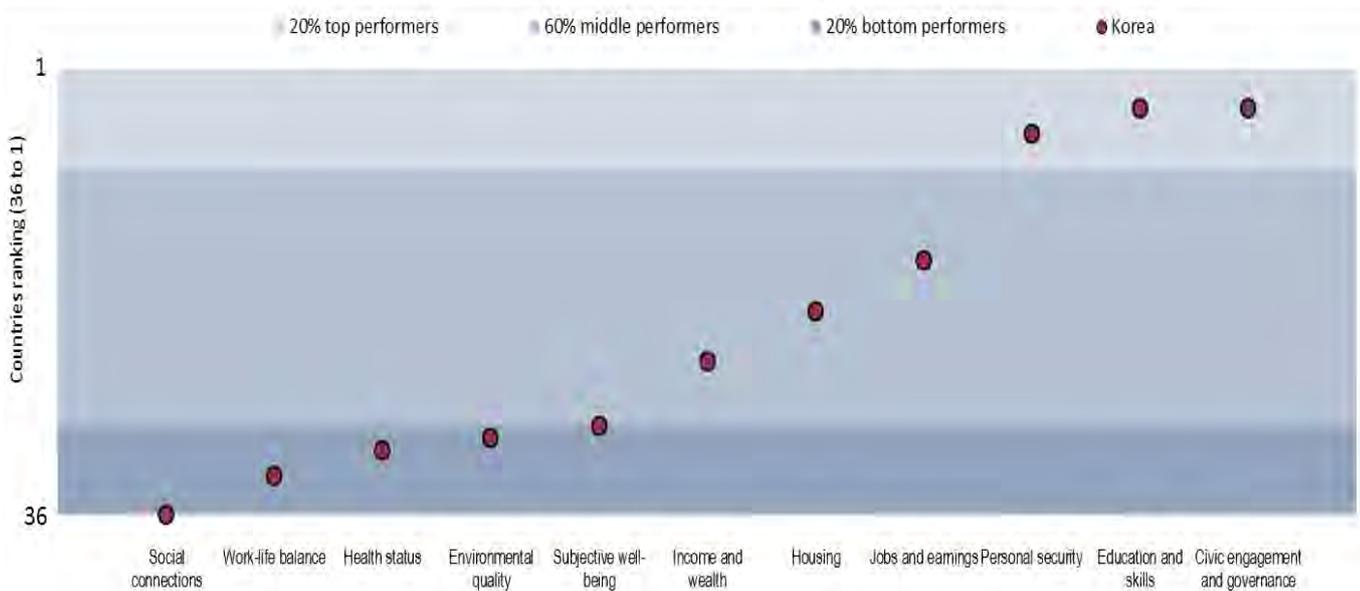
Number of people of working age (20-64) per person of pension age (65+) in selected countries, 1950-2050



Source: OECD (2013), *Pensions at a Glance – OECD and G20 Indicators*, OECD Publishing, Paris; United Nations, *World Population Prospects - 2012 Revision*.

Output growth would also help improve Koreans' subjective well-being. It ranks in the bottom fifth of OECD countries in four categories -- social connections, work-life balance, health status and environmental quality (Figure 3). At the same time, Korea ranks in the top fifth in personal security, education and skills and civic support and governance. It also ranks around average in housing.

Figure 3. Well-being indicators suggest room for improvement in Korea



Source: *How's Life?* (2015a); updated in June 2015

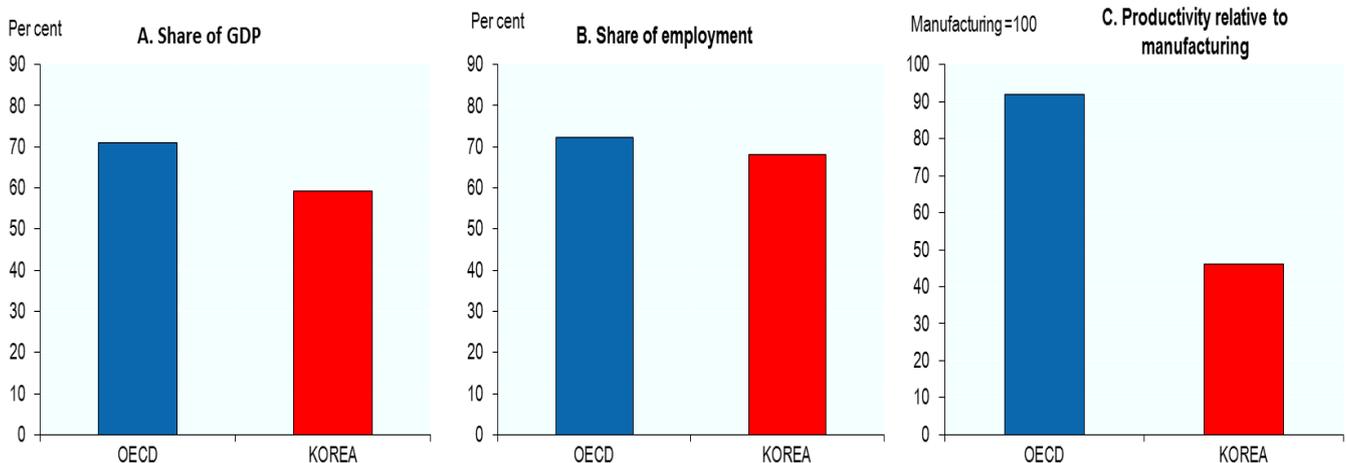
Korea's has significant scope to raise productivity

Productivity (per hour of labour input) in Korea was 55% of the top half of OECD countries in 2014, although the impact on *per capita* income is partially offset by exceptionally large labour inputs (Figure 1). Growth in multifactor productivity (MFP) has historically been much higher in Korea than the OECD average, given the large scope for catch-up growth. While Korean MFP growth remains above the OECD average, it has slowed from an annual average of 4.9% in the 2001-07 period to 3.1% in the 2007-14 period, as it approaches the global knowledge frontier.

There is a stark contrast between the productivity of some large manufacturing firms producing cutting-edge goods and lagging performance by smaller firms, as well as firms in services and in some declining manufacturing sectors. Overall, services accounted for 59% of GDP, well below the OECD average as Korea's manufacturing-led development has siphoned capital, talent and other resources away from services. Given the concentration of SMEs in the service sector, moreover, and their relatively sub-par productivity levels (Chapter 4), productivity for the services sector as a whole is only around half of that in manufacturing. In contrast, service sector productivity in the OECD area is 92% of that in manufacturing (Figure 4). Some large Korean manufacturers have achieved high levels of productivity. Indeed, Korea is ranked among the top ten countries globally in as the production of cars, steel, ships, mobile phones, DVDs, and semiconductors. Korea's numerous strengths, such as the highest level of R&D spending, led by the business sector, excellent scores on student achievement tests and the highest share of university graduates among young adults, lay strong foundations for narrowing the productivity gap.

Recognising the weaknesses of Korea's traditional growth model, President Park launched an initiative in 2013 to foster a "creative economy" centered on innovation, in which start-ups and high-growth small businesses play a key role (Chapter 2). Productivity is also likely to be enhanced by the Three-year Plan for Economic Innovation launched in 2014, focusing on regulatory reform.

Figure 4. Service sector productivity is low in Korea in 2014¹



Note 1. Based on 2010 prices for value added
Source: OECD National Accounts Database and OECD STI Database.

A new economic paradigm for Korea: Fostering a creative economy

A creative economy depends on a range of reforms:

- **Leveraging science and technology for innovation and growth** (Chapter 2): The return on Korea's large investment in innovation could be improved by better tapping into global science and innovation networks, enhancing the role of start-ups and SMEs in innovation, strengthening and reorienting public

R&D and improving technology transfers. Korea's levels of international co-authorship and co-patenting are well below the OECD median. While Korea's public expenditure on R&D is high, it still has few world-class universities.

- **Going digital to maximise the benefits of the knowledge economy** (Chapter 2): The goal is to boost productivity by harnessing the potential of the digital economy, which enables firms to reduce fixed costs and outsource many activities. This requires increasing ICT usage economy-wide, particularly in SMEs, to narrow the large and growing gap in productivity relative to large firms.
- **Reinforcing green and creative growth through green innovation** (Chapter 2): Greenhouse gas emissions and energy intensity have been rising despite Korea's 2009-13 green growth plan. The government has been increasing the share of public investment that is focused on green technology. It is essential to ensure that such investment results in meaningful reductions in greenhouse gas emissions, which have increased by 133% since 1990. The emissions trading system introduced in 2015 should help Korea achieve its target of a 37% reduction in emissions from a business-as-usual baseline.
- **Seizing the opportunities of trade and investment** (Chapter 2): Korea is already highly integrated into Global Value Chains (GVCs), but the services content of its exports reflect lagging productivity in key services sectors. Focusing reforms that facilitate trade and foreign direct investment (FDI) in maritime transport, freight transport services, air transport, courier services and legal services, in particular, would help Korea cement its position as a leading trading economy.
- **Easing the regulatory burden and promoting competition** (Chapter 3): Innovation requires shifting capital and labour to growing sectors and away from those that are declining. Such resource flows would be facilitated by reducing Korea's high level of product market regulation. The government's regulatory reform initiatives should shift from the quantity of regulations to their quality.
- **Promoting entrepreneurship and venture capital** (Chapter 4): New firms are a key driver of innovation. Promoting new start-ups, in part by expanding access to non-debt financing, including venture capital, would strengthen the SME sector. It is also important to foster a more entrepreneurial culture.

Complementary reforms to promote labour force participation, social cohesion and productivity

- **Making education and training more relevant to the labour market** (Chapter 5): Targeted policies to improve the labour market relevance of education and training can bring a triple dividend: promoting social inclusion, mitigating the fall in the labour supply as the population ages and ensuring a skilled workforce. In particular, it would help youth make the transition from education to employment while providing the necessary skills to enable older workers to remain in the labour force.
- **Reforming the labour market to support social inclusion and potential growth** (Chapter 6): A range of reforms are needed to raise employment among under-represented groups, namely women, youth and older workers. Breaking down labour market dualism is a key to increasing their employment among these groups, while promoting social cohesion. The female employment rate is 21 percentage points below that of men, the widest gap in the OECD area. Further investment to improve the quality and accessibility of childcare services could have a particularly large impact on female labour market participation.

A quantitative assessment of economic reforms

Implementing the structural reforms recommended in this report is expected to contribute significantly to Korea's mid-term economic growth by increasing employment and productivity. A quantification based on the OECD's past empirical studies suggests that implementing these reforms would increase Korea's GDP level by around 1¼ per cent after five years (Table 1), and 2¼ per cent after ten years (thus raising annual growth by an average of ¼ per cent over both horizons). While about two-thirds of the impact is realised through productivity gains, employment is also projected to increase by around 100,000 jobs after five

years (0.4% of the 2014 labour force), and by around 180,000 jobs after ten years. A further explanation of the quantification method is provided in the appendix.

Some of recommended structural reforms would unambiguously narrow household income inequality, if implemented. For instance, higher educational attainments and skill upgrading improve the employment perspective of job seekers and reduce wage dispersion. Reducing duality in labour market will reduce the earning disparity between regular and non-regular workers, while higher full-time participation of women would reduce gender inequality in earnings.

Table 1. Impact on the level of GDP over five years

	Increase in GDP (in %)	Productivity contribution	Employment contribution
Fostering innovation	0.2	0.2	
Easing the regulatory burden and promoting competition	0.7	0.7	
Investing in education and skills	0.0		0.0
Labour market reforms to promote participation and social inclusion	0.3	0.1	0.2
Reducing labour market duality	0.1	0.1	
Further development of childcare services	0.2		0.2
Total	1.3¹	1.0	0.3¹

Impact on the level of GDP over ten years

	Increase in GDP (in %)	Productivity contribution	Employment contribution
Fostering innovation	0.4	0.4	
Easing the regulatory burden and promoting competition	1.1	1.1	
Investing in education and skills	0.1		0.1
Labour market reforms to promote participation and social inclusion	0.9	0.3	0.6
Reducing labour market duality	0.3	0.3	
Further development of childcare services	0.6		0.6
Total	2.5	1.8	0.7

¹ Figures do not sum to total due to rounding error.

2. Fostering Innovation

In 2013, President Park launched the “creative economy” initiative, aiming to generate new jobs and markets through creativity and innovation, to strengthen the country’s global leadership in the creative economy, and to promote creativity more generally in Korean society. Naturally, maximising the potential of Korea’s creative economy must involve leveraging its science and technology capacity, capturing the benefits of the digital economy, advancing green innovation, and addressing low productivity in the services sector. Considered as a package, the recommendations set out in this chapter are estimated to increase the level of GDP by 0.2% over five years, and by 0.4% over 10 years.

Leveraging Science and Technology for Innovation and Growth

Today, Korea is the world’s second most R&D-intensive country, after Israel, investing 4.15% of GDP in R&D (2013) while it has many characteristics of a highly developed innovation system. The 3rd Science and Technology (S&T) Basic Plan (2013-17) sets out the government’s roadmap for economic prosperity and public well-being through S&T. The Basic Plan also seeks to diversify the Korean economy by orienting policies towards a wider range of sectors and technologies. Furthermore, the “creative economy” initiative emphasises the role of innovation in addressing social challenges (such as rising inequality and unemployment, a rapidly ageing society, and emerging environmental problems, etc.). To achieve these strategic objectives, however, several challenges in the Korean STI system need to be addressed.

Korea has progressively built up its science, technology and innovation (STI) capabilities in recent decades. While Korea’s public expenditure on R&D is high (Figure 5 (a)), it still has few world-class universities and produces few high-impact publications by OECD standards (Figure 5 (b), (c)). One reason is that the public research system has historically been skewed towards applied and development-oriented research that is largely performed in Government Research Institutes (GRIs). While the government is committed to expanding public R&D to KRW 92.4 trillion (6.2% of 2014 GDP) over five years, it is important to take steps to improve the efficiency of public R&D investment, including by strengthening fundamental research and reforming the system for evaluating the performance of national R&D programmes.

GRIs and universities appear very active in patenting their research results (Figure 5 (i)), but industry-university linkages have traditionally been underdeveloped, and efforts are required to strengthen these relationships to improve technology transfer and commercialisation. Going forward, establishing an ecosystem for co-operation among GRIs, universities and industry to promote greater use of public R&D results by other firms and for social purposes is essential. Current initiatives, such as the programme to support exchanges of researchers between universities and GRIs, and the plan to establish several new joint industry-university-GRI R&D centres, are helpful in this regard, but reorienting GRIs’ research towards supporting broad-based socioeconomic development, and enhancing university-industry linkages, is also important.

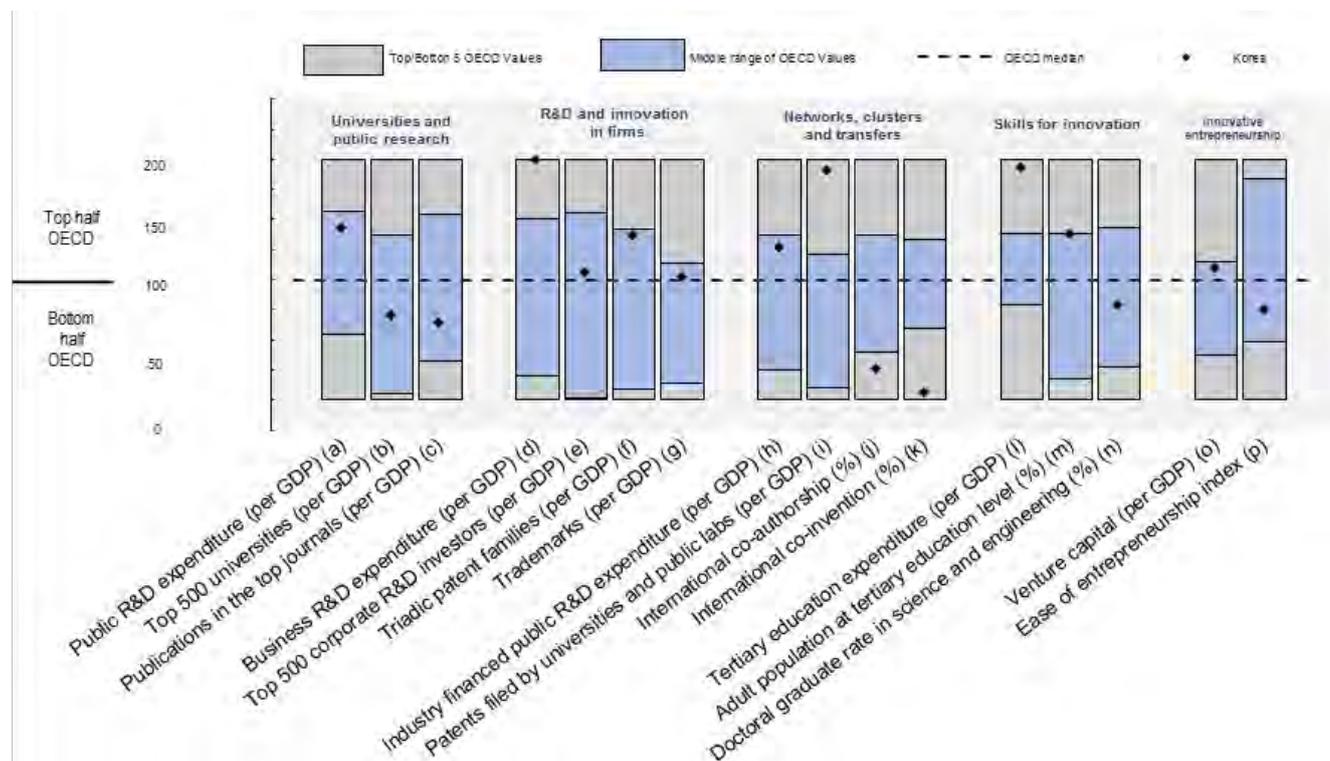
Large manufacturing conglomerates are the main source of business R&D, with SMEs and young firms playing much smaller, albeit growing, roles. The government is implementing a number of initiatives aimed at building SMEs’ innovative capacity such as: increasing the share of its investments in R&D going to SMEs (from 12.4% in 2011 to 18.0% in 2017); requiring GRIs to devote 15% of their total budget to supporting SMEs by 2017 (up from 7% in 2012); and strengthening technological assistance for SMEs through extension programmes and innovation vouchers, etc. At the same time, the government should promote business innovation by further lowering barriers to entrepreneurship (Figure 5 (p)) (Chapters 3 & 4).

Korea’s levels of international co-authorship and co-patenting are among the lowest in the OECD (Figure 5 (j), (k)). A traditionally strong focus on applied research and technological development performed largely in GRIs partly explain low levels of international co-authorship. The low level of patent applications with foreign co-inventors is partly due to Korea’s conglomerate industrial structure, which tends to retain technology development within the group. As Korea looks to build its fundamental research capacity and its

firms work increasingly at technological frontiers, it needs to better tap into global science and innovation networks. The government has developed a Comprehensive Plan for Global Co-operation to this end, emphasising the formation of a global network of overseas STI outposts, expansion of S&T official development assistance, reinforcement of science diplomacy, promotion of international joint R&D, and sharing of large R&D facilities. These measures could be usefully complemented by further improvement of the regulatory environment for trade and investment, which would facilitate foreign investment in R&D and help Korea connect to global science and innovation networks.

Fig 5. Korea's national science and innovation system, selected indicators, 2014

Normalised index of performance relative to the median values in the OECD area (Index median=100)



Source: OECD (2014b), *Science, Technology and Industry Outlook 2014*.

Going Digital to maximise the benefits of the digital economy

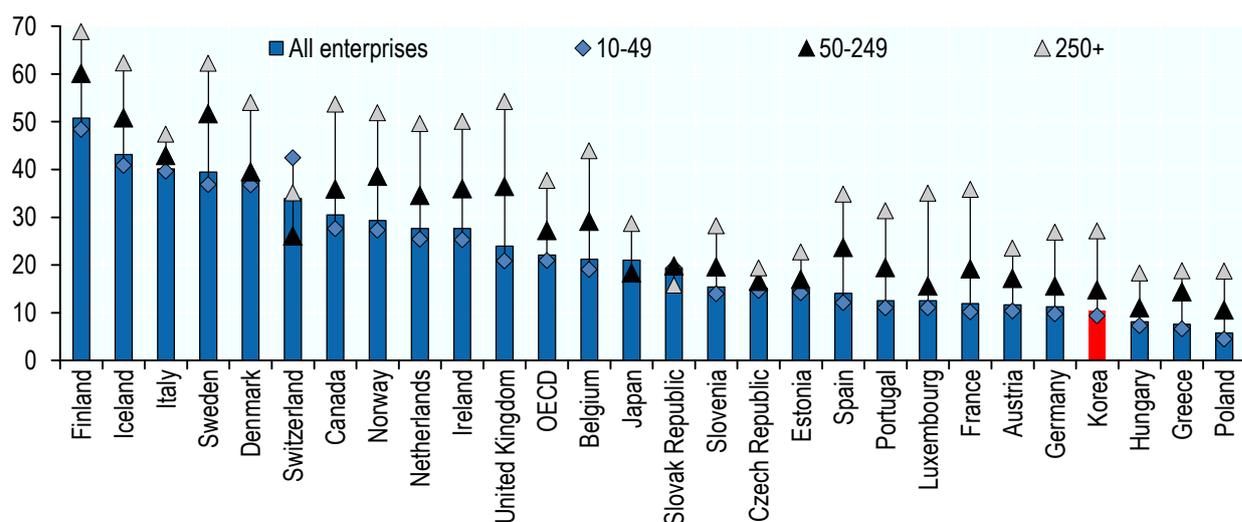
Building on its position as a world-leader in the provision of Information & Communication Technology (ICT) goods and benefiting from extensive broadband deployment, the government plans to harness the potential of the digital economy to drive productivity, job creation and growth. Indeed, the creative economy initiative calls for “combining science, technology and ICT to energise existing industries” and “developing new industries based on software and the Internet”.

One of the goals of the “creative Korea” strategy is to mainstream the use of ICTs across the entire economy and in particular to increase ICT adoption within SMEs. While this is a challenge for many countries, in Korea only 15.3% of Korean companies were engaged in sales via e-commerce in 2013 which was below the OECD average of 20.8%. While 33.8% of larger Korean companies (>250 employees) sold online, this was only the case for 14.9% of smaller companies (10-49 employees). Fostering the adoption of ICT by SMEs is therefore rightly a government priority.

Among more recent uses of ICTs by firms, cloud computing deserves special attention. Use of the cloud can transform computing into a business model that enables easier, more flexible and on-demand access to applications and computing power. It can, therefore, be particularly beneficial for smaller firms. In 2014, more than 22% of businesses used cloud computing services in the OECD area. In Korea, however, only 10.4% of all companies relied on cloud computing in 2012, implying there is a large scope for greater uptake (Figure 6).

Figure 6. Enterprises using cloud computing services by size, 2014

As a percentage of enterprises in each employment size class



Source: OECD (2015b), OECD Digital Economy Outlook 2015.

Using the digital economy to help small firms is in line with the objective in the creative economy plan to “strengthen the role of venture businesses and SMEs”. A more pervasive and intensive use of digital technologies can increase efficiency in SMEs and improve their capacity to adapt to rapidly changing markets, thereby reducing the large labour productivity gap relative to large enterprises.

At USD 150 000 PPP per person employed, Korea’s labour productivity in the ICT sector ranked third among the OECD in 2013, and was 2.5 times higher than in the whole economy. But labour productivity in SMEs is only about a quarter of that in large firms, while their wages are about half (Chapter 4). The digital economy can support productivity gains also by lowering barriers to entrepreneurship, through reduction in the amount of resources needed to create a business, and increasing the scope for business expansion into new markets. However, achieving the productivity gains available through the digital economy requires the reallocation of resources via changes in market shares, where productive and successful SMEs are able to grow and less successful firms are closed down. Removing the structural impediments that limit the shift of resources across firms is key to realising the benefits from the digital economy.

In addition, an area that will increase in importance is the Internet of Things (IoT). Korea is implementing IoT projects in different areas such as public administration (improving public services), industry (improving productivity, efficiency), and quality of life (enhancing safety, convenience, and other aspects related to quality of life). To further develop the IoT, it is important to adapt current regulation to the opportunities offered by the IoT, e.g. in the area of telemedicine.

Korea is a leader in broadband availability and speed, an essential 21st Century infrastructure. Korea has the highest number of broadband subscriptions with 100 Mbps or higher download speeds reflecting its high level of deployment of fibre. In terms of total fixed broadband penetration, Korea ranks fifth among OECD countries, behind Switzerland, the Netherlands, Denmark and France.

The digital economy is fuelled by data and the analysis of the data. Data and data analytics are enabling new insights and the significant improvement or development of new products, processes, organisational methods and markets. Public organisations produce large amounts of data. Improved access to data and greater use of data can lead to greater economic value creation.

Reinforcing Green and Creative Growth through Green Innovation

Korea has had an early and ongoing commitment to green and creative growth. Korea set an objective of reducing greenhouse gas (GHG) emissions by 30% by 2020 relative to a “business as usual” scenario, which implies a 4% cut from the 2005 level. Despite the large-scale spending on green growth, GHG emissions have risen 18% over 2007-11, reversing the downward trend in the ratio of emissions to GDP that began in 1997 (OECD 2014a).

The second Five Year Plan (2014-18) of the National Strategy for Green Growth (2009) consists of four major objectives: 1) green technology and business development; 2) addressing climate change and re-orienting energy policy to attain energy independence; 3) raising the overall quality of life through increased emphasis on environmental performance; and 4) advancing relevant international negotiations and cooperation. Korea’s Framework Act on Low Carbon, Green Growth came into effect in 2010, enshrining Korea’s 2009 UNFCCC mitigation pledge to reduce GHG emissions by 30% by 2020.

The recent launch of a nationwide emissions trading system (ETS) is a critical step to addressing Korea’s GHG emissions, which remain one of its central challenges to greening growth. At the same time, investment in green technology research, development and demonstration may remain important to achieving Korea’s intended nationally-determined contribution (INDC; 37% reduction in emissions from business as usual) target by 2030.

Korea is addressing climate change by promoting innovation and R&D in related technologies. In 2015, the Korean government released its “Climate Technology R&D Policy” for 2014-2020, which aims to develop six core (solar cell, fuel cell, bio-fuel, secondary cell, power IT, CCS) technologies for reducing GHG and creating new industries. In 2011, total public R&D spending on energy technologies amounted to 0.049% of nominal GDP, just above the OECD average. The greatest shares were allocated to renewable energy sources (26%), nuclear power (20%) and energy efficiency (16%) (IEA, 2015). The government has been expanding the proportion of R&D investment dedicated to green innovation, which stood at 17.1% in 2012, up from 13.3% in 2008. as the government has also been expanding various funds for green technologies including the Eco-Innovation Technology Development Project (2011-2020), which is supported by national funds (KRW 1.553 trillion) as well as private investment (KRW 600 billion) and targets multiple technology fields beyond GHG emissions reduction technologies such as water, eco-friendly vehicles, and waste resources recovery. Korea also provides tax deductions for green R&D projects at a rate of 20% for green industries and 30% for small businesses.

A wide range of policies are also in place to support sustainable consumption and production, including green products certification schemes, carbon labling, and purchasing and incentive programmes. For example, Korea’s “Green Card” programme provides points or discounts on public services for eco-friendly-consumption while its “Carbon Point System” initiative provides incentives to reduce household energy use. Green requirements are also applied for public procurement processes. These measures should contribute to green technology development and encourage green innovation for larger companies, while at the same time push small and medium-sized enterprises towards green innovation.

Given the significant level of investment in green growth by the Korean government, at 2% of GDP, efforts on green innovation should continue while ensuring that these measures contribute efficiently towards meaningful reductions in GHG emission. To achieve green growth goals, these efforts should be complemented by a shift in the tax burden away from investment and labour to pollution.

In addition to the potential economic gains from green growth, it would improve the quality of life by reversing the environmental degradation that accompanied rapid industrialisation. Indeed, air quality in Korea’s capital region is among the worst in the OECD (OECD, 2015a) and the human health cost of air pollution caused by fine particulate matters were estimated at 1% of GDP in 2012 (Im *et al.*, 2012).

Key OECD Recommendations

Leveraging Science and Technology

- Enhance the overall efficiency of public investment in R&D and strengthen fundamental research.
- Improve the relevance and utility of public research by widening the orientation of government research institutions towards supporting broad-based socioeconomic development objectives.
- Enhance universities' role in research and innovation and strengthen linkages with industry and GRIs.
- Improve the framework conditions for entrepreneurship with a view to unleashing the innovative potential of start-ups and SMEs.
- Improve the regulatory environment for international investment in R&D and competition with a view to better engage in global STI networks.

Going digital

- Reduce structural impediments that limit the reallocation of resources, thereby reducing the productivity gains that can be realised through the digital economy.
- Foster ICT adoption within companies with a particular focus on SMEs. Measures can include programmes targeting the digitisation of entire value chains, seconding ICT experts to firms with a low ICT adoption rate, and promoting on-the-job ICT skill training.
- Promote the uptake of cloud computing. In particular, assist firms in understanding the concept, increase transparency of contractual settings and help addressing privacy and security concerns.
- Examine and seek to minimise barriers to the use and benefits of the Internet of Things in areas such as health care and transport. In particular, revise medical laws to allow for telemedicine.

Encouraging green innovation

- Continue making substantial investments in green growth and green innovation initiatives while ensuring they contribute efficiently towards meaningful reductions in GHG emissions.

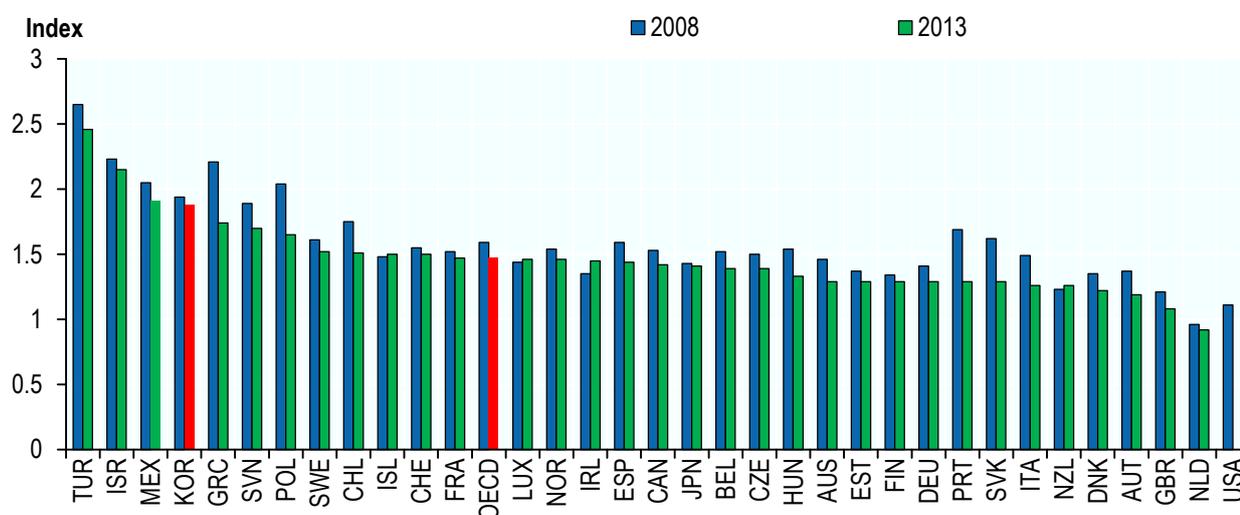
3. Easing the Regulatory Burden and Promoting Competition

Regulation in Korea is among the most stringent in the OECD, impacting most significantly on the service sector and all downstream sectors depending on service sector inputs. This holds the country back from fully seizing the growth opportunities from trade and investment. Administrative burdens and complex regulatory procedures are also a particular burden on start-ups and SMEs. The government has made regulatory reform a key priority, as reflected in the *Three-year Plan for Economic Innovation*. While a large number of regulations are being eliminated, the focus should increasingly shift to the *quality* of regulation and its impact on competition, productivity and growth. Considered as a package, the recommendations set out in this chapter are estimated to increase the level of GDP by 0.7% over five years, and by 1.1% over 10 years.

Korea's stringent regulations hold back economic growth

Korea's 2013 score in the OECD's Product Market Regulation (PMR) indicator was the fourth most stringent in the OECD (Figure 7). The PMR has been shown to have a significant relationship with aggregate productivity across the OECD (e.g. Koske *et al.*, 2015). Reducing Korea's aggregate PMR would help stimulate private investment in innovative activities, the diffusion of knowledge, improved managerial performance and entry by new firms. Administrative burdens and complex regulatory procedures are also a particular burden on start-ups and SMEs, constraining market entry, productivity gains (Chapter 4) and scaling up.

Figure 7. The stringency of product market regulation in Korea is the fourth highest in the OECD



Note: The OECD Indicators of Product Market Regulation are a comprehensive and internationally-comparable set of indicators that measure the degree to which policies promote or inhibit competition. Empirical research shows that the indicators have a robust link to performance. The indicator, which ranges from zero (most relaxed) to three (most stringent), is available for 30 OECD countries. The overall indicator is based on more than 700 questions.

Source: OECD Product Market Regulation Database and Koske *et al.* (2015).

Reforming the services sector to seize the opportunities of trade and investment in services

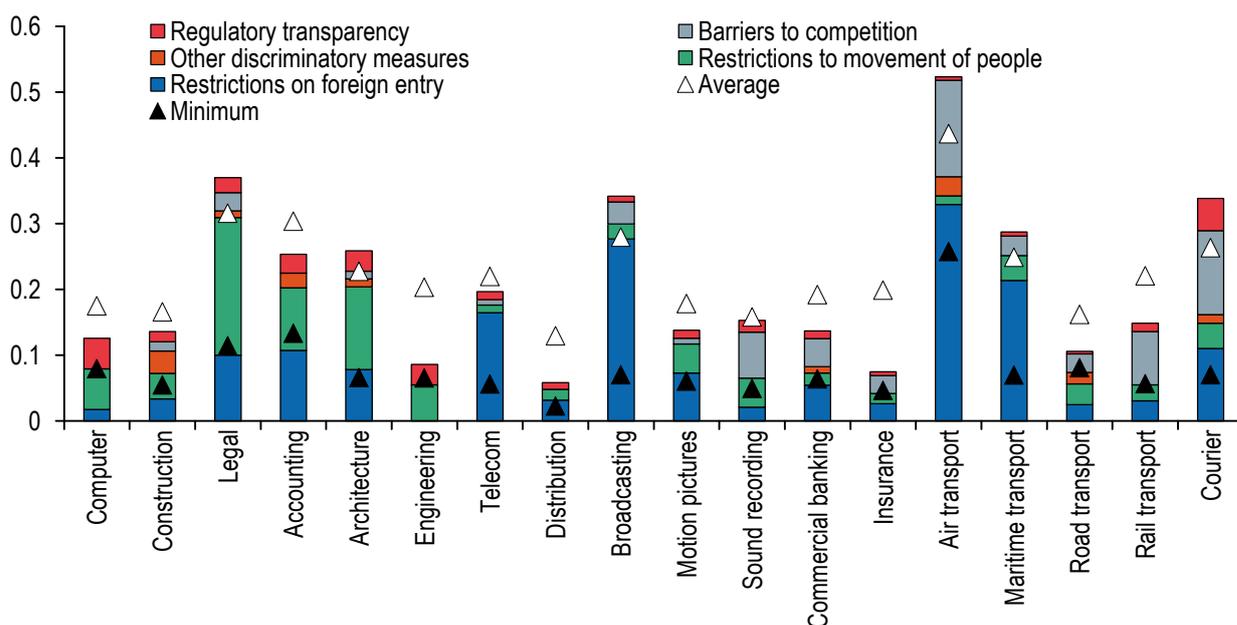
Korea is already highly integrated into global value chains (GVCs), but engaging in progressively higher value-added activities will be critically important to the success of the creative economy initiative, and to the continued development of Korea's economy. The OECD-WTO Trade in Value Added (TiVA) database (2015) reveals that Korea has the highest share of foreign content of exports in 2011 in all G20 countries (41.6%). This share has nearly doubled over the last two decades, and the integration of Korea into 'Factory Asia' is particularly strong in the ICT & electronics and Motor Vehicle sectors. Up to two-thirds of Korean

imports in these key industries are destined for use in producing exports. Of the total domestic value added produced by the manufacturing sector in Korea, 58.5% was driven by foreign final demand in 2011, significantly higher than the OECD average (41.9%).

However, the service content of total exports was only 40.1%, significantly below the OECD average, while domestic services accounted for only 25% of Korea's value-added in exports, the third-lowest share in the OECD area. As for exports of manufactured goods, only 29.7% of the total value added originated in the services sector in 2011, the second lowest in the OECD. This may partially reflect the fact that firms tend to perform services in-house rather than contracting out. Exports of goods are still dominated by large conglomerates (*chaebols*) that are vertically integrated. Moreover, Korea exports fewer services as compared to other OECD countries.

Focusing on reducing the regulation of key services and network sectors could yield most benefit in terms of boosting economy-wide productivity and economic growth. According to the OECD Services Trade Restrictiveness Index (STRI; Figure 8), there is room for improvement in several sectors that play an important role in global value chains, such as maritime transport, freight transport services, air transport, courier services and legal services. Barriers to foreign entry include foreign equity restrictions in sectors like telecoms, air transport and maritime transport, in addition to restrictions on board members and managers for some professional services. Some sectors are also relatively less competitive because the state still controls major firms. On the contrary, the environment is rather competitive in sectors such as distribution, insurance, and engineering services.

Figure 8: Korea's STRI by sector and policy area



Note: The STRI indices take values between zero and one, one being the most restrictive. They are calculated from the STRI regulatory database which contains information on regulation for the 34 OECD Members, Brazil, China, India, Indonesia, Russia and South Africa. The STRI database records measures to Most Favoured Nations. Preferential trade agreements are not taken into account. Air transport and road freight cover only commercial establishment (with accompanying movement of people). The data have been verified and peer reviewed by OECD Members.

Source: OECD Services Trade Restrictiveness Index, 2014.

Regulatory reform is a priority for the government

Recognising the negative economic impact of over-burdensome regulation, the government has introduced several initiatives, such as the *Regulatory Guillotine*, the *Thorn under the Nail* and the *Sin-Moon-Go*, which allows citizens to suggest regulatory reforms. For example, once an idea for regulatory reform is submitted under the *Sin-Moon-Go* programme, the government has two weeks to determine whether to accept it. The issue must be fully resolved within three months.

In 2014, the government reduced by 10% (995 out of 9,876) the number of regulations governing economic activity. They are committed to continuing to eliminate or improve core regulations. The regulatory burden is also to be capped by introducing a “cost-in, cost-out” system, which aims to offset the costs of new regulations by abolishing or relaxing existing regulations with a similar impact. The system was introduced in eight ministries in 2014 and expanded to 14 in 2015. Depending on the evaluation of the programme at end-2015, it may be extended to most other ministries in 2016. The success of the government’s regulatory reform agenda will ultimately depend on the extent to which such measures are implemented. Moreover, the government does not at present systematically carry out estimates of the economic impact of recent or planned reforms, a development which could help sustain broad support for the reform agenda.

Regulatory quality Korea also lags behind the highest-scoring countries in the implementation of key regulatory quality tools, particularly as regards *ex post* evaluation. Going forward, the government’s focus should shift from quantitative targets for reducing the number of regulations to an emphasis on improving the quality of regulations. In particular, Korea needs an explicit and mandatory methodology for developing new laws and regulations. On average between 2011 and 2013, only 15% of all new laws and regulations were initiated by the executive branch and subject to quality control measures, such as impact assessments and public consultation. Similar standards should be applied to laws and regulations initiated by the National Assembly.

Competition assessments are also mandatory for new or amended proposals by the executive branch only. Around 60% of the recommendations made by the Korean Fair Trade Commission (KFTC), which conducts competition assessments of proposed laws, are incorporated in draft legislation. The KFTC cannot make assessments on legislation initiated by the National Assembly. This provides a loophole for potential anti-competitive legislation which should be addressed.

Key OECD Recommendations

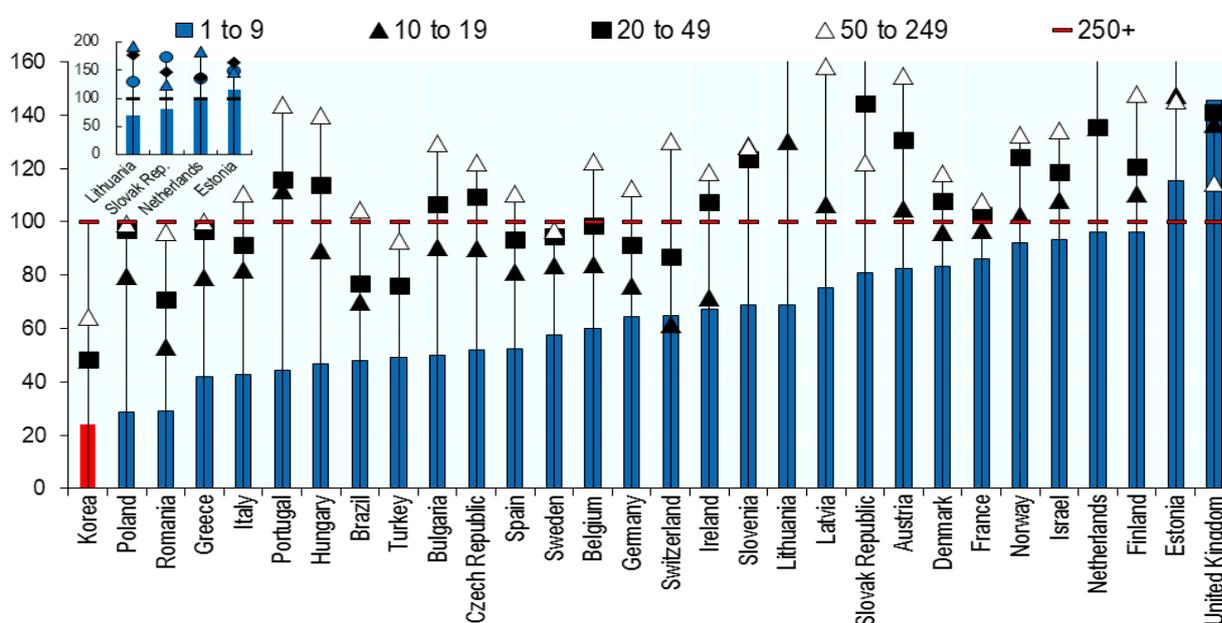
- Make the services sector, and start-ups and SMEs in particular, the priorities for regulatory reform given the large scope for productivity gains.
- Prioritise reforms that enhance competition in services sectors, notably maritime transport, freight transport services, air transport, courier services and legal services.
- Shift the focus from the quantity of regulations to their quality.
- Systematically carry out *ex ante* and *ex post* estimates of economic benefits of regulatory reforms.
- Extend the use of regulatory quality tools, including competition assessments, to all new regulations including legislation initiated by the National Assembly.

4. Promoting Entrepreneurship and Venture Capital

Small and medium-sized enterprises (SMEs) are even more central to Korea than to most OECD economies. However, lagging productivity hampers their overall contribution to economic growth despite significant state supports. Addressing SMEs' constraints in accessing finance, particularly from non-bank sources, could help improve the performance of SMEs, and of high-potential firms, in particular.

In 2013, SMEs represented 99.9% of enterprises and accounted for 86.8% of employment, much higher than the OECD average (68%). Micro-enterprises (less than 10 employees) are predominant in the Korean economy, accounting for 93.1% of enterprises and 44.2% of employment (89.9% and 29.1% respectively in the OECD) (OECD, 2015c). Korean SMEs exhibit a large and growing productivity gap with respect to larger enterprises in capital-intensive sectors, in contrast to other OECD countries, where medium-sized firms often outperform large ones (see for example Figure 9; OECD, 2015c). This large productivity gap limits the contribution of SMEs to aggregate economic growth.

Figure 9. Labour productivity in typical service sector SMEs tends to lag behind larger firms
Value added per person employed in wholesale and retail trade (inc. repair of motor vehicles, motorcycles)



Note: a) Index: firm with 250+employees in each country = 100; 2012, or latest available year
b) For Korea, the size class "50-249" refers to "50-299" and the size class "250+" refers to "300+";
c) For Turkey: data reported for the enterprises size class 1_9 correspond to the broader size class 1_19; labour productivity computed as value added per employee;
d) For Israel, data correspond to the year 2011. NB: Data covering the entire service sector is not available for Korea, while comparable data is available only for some sub-sectors. This figure is thus intended as illustrative of the wider service industry.

Source: OECD (2015c).

In Korea, the rate of improvement-driven entrepreneurship (46%) is low relative to other OECD countries, while necessity-driven entrepreneurship is relatively more common (36%) (GEM, 2012).² In Korea, this type of entrepreneurship tends to be characterised by micro-firms which do not scale up or grow. Moreover, survey data indicate that Koreans perceive fewer entrepreneurial opportunities and find themselves less capable of becoming an entrepreneur than in most other countries, with the exception of Japan. They are also more fearful of failure, and entrepreneurship is considered a less desirable career choice in Korea

² Entrepreneurship is defined as "necessity-driven" when individuals became because they had no other option for work, and as "improvement-driven" when their main driver is being independent or increasing their income (GEM, 2012).

(OECD 2015c). Youth and especially women are also less likely to become entrepreneurs than in most other OECD countries. It is therefore critical to address these cultural barriers to entrepreneurship, which would help spur more improvement-driven entrepreneurship.

The Korean government has already taken steps to overcome these cultural challenges and improve entrepreneurial skills and opportunities. In 2009, for example, it introduced the “Act on support of female-owned businesses”, which gives preferential government support to female-owned businesses in terms of financing, government procurement and training services. In 2011, it set up the “Young Entrepreneurs Start-up Academy,” which offers generous financial and non-financial assistance to selected innovative ventures run by under-39 year olds. In 2015, a plan was unveiled to establish a KRW 300 billion Youth Development Fund to support innovative youth activities, including subsidies in the form of matching funds for non-governmental organizations.

Young, growth-oriented SMEs face constraints in accessing non-debt finance

SME growth and new firm creation can be a key driver of productivity improvement, especially when entrepreneurs seize innovation-related opportunities. Access to finance represents an important barrier to the creation and expansion of SMEs, especially young and innovative firms which can contribute disproportionately to growth. In Korea, the substantial government support for SME finance in recent decades has focused on traditional debt, such as direct lending and credit guarantees, to the detriment of the development of market-based SME financing (Jones and Kim, 2014). However, bank lending is often ill-suited to newer, innovative and fast growing companies. While bank financing is crucial for many SMEs, a more diversified set of options is needed to boost SME long-term investment and ease entry and growth of innovative enterprises.

In recent years, active government support through tax incentives and direct investment has contributed to a large and expanding venture capital market: venture capital investments increased by 12.3% between 2012 and 2013, by 18.4% between 2013 and 2014, and are expected to surpass KRW 2 trillion in 2017. In addition, angel investments, which fell by more than 90% between 2000 and 2011, have been expanding in recent years thanks to policy initiatives, such as an increase in tax deductibility of angel investments, the creation of an “Angel Investment Support Center” to facilitate matchmaking between angel investors and young ventures; and the establishment of a co-investment scheme (the Angel Investment Matching Fund).

Other recent policy initiatives aimed at supporting alternative financing channels for new and growth-oriented SMEs include the introduction of a regulatory framework for crowdfunding, the increase of the tax deduction for equity investments, the launch of the Korea New Exchange (KONEX), a dedicated platform for public listings for SMEs, and the introduction of facilitating measures (such as tax incentives and lighter regulation) for mergers and acquisitions involving start-ups or venture businesses. Furthermore, the government provides funds for investment and debt restructuring and has expanded the scope of protected assets during bankruptcy in order to facilitate a second chance for entrepreneurs. Further improving access to equity finance for innovative start-ups and growth-oriented SMEs is needed to build a “creative Korea” and narrow the productivity gap. It is important to continue improving SMEs’ ability to offer investor-ready projects; improve the entrepreneurial culture and offer entrepreneurs a second chance after failure; improve private sector participation in the venture capital market; and increase the level of capital going to seed and early-stage finance (Jones and Kim, 2014)

Furthermore, Korea’s sizeable R&D tax credit, representing a record 9.6% of total national tax credits in 2014, is not well tailored to the needs of young, innovative firms. In particular, the lack of carry-over provisions or cash refunds inhibits the uptake of this credit by young and small firms; as such businesses typically lose money in the early years of an R&D project. The design of these incentives should be reviewed to increase their effectiveness in stimulating innovative entrepreneurship (OECD, 2014c).

Key OECD Recommendations

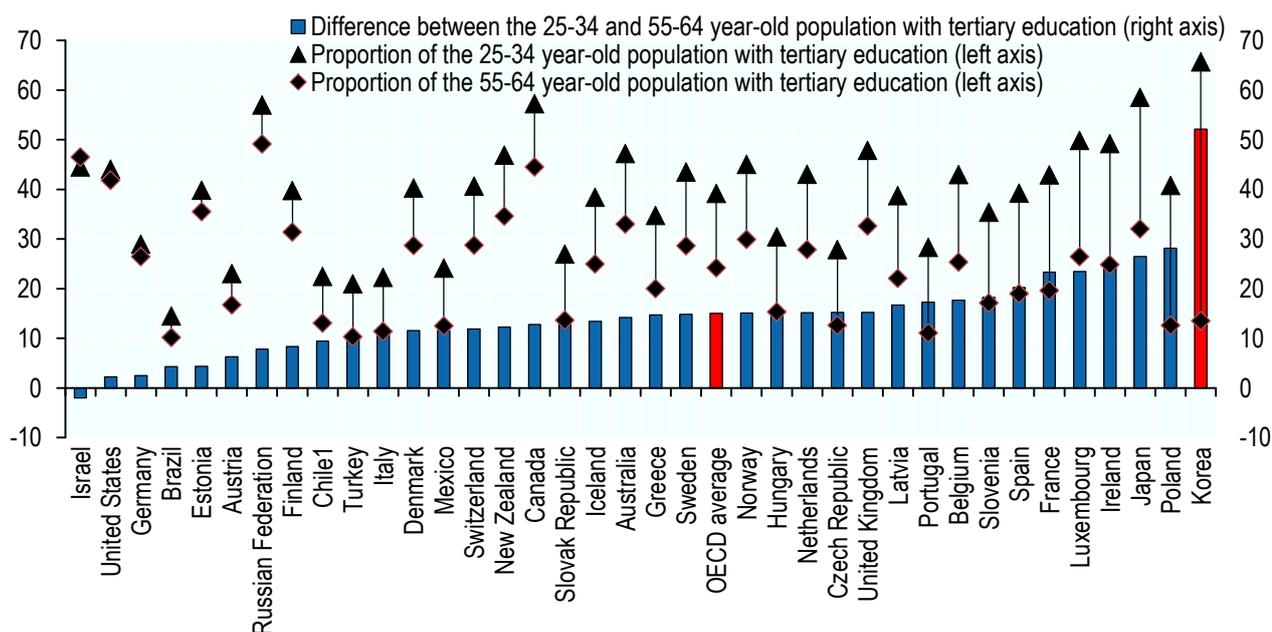
- Continue efforts to foster a more entrepreneurial culture, especially among women and young people, including through improved entrepreneurship education, financial education and reforms to facilitate a second chance for entrepreneurs.
- Promote market-based financing for SMEs and entrepreneurs while encouraging the diversification of their financing sources beyond traditional bank lending.
- Implement targeted policies that leverage private resources and develop appropriate risk-sharing mechanisms with the private sector.
- Ensure that the R&D tax credit scheme provides incentives to young and small firms and encourages industry-university collaboration.

5. Making Education and Training More Relevant to the Labour Market

While youth have high skills and face difficulties transitioning from education to employment, older workers have low skills and struggle to find work if forced to take early retirement. Targeted policies to improve the labour market relevance of education and training programmes can bring a triple dividend: promoting social inclusion while ensuring that Korea has the skilled workforce it needs to build a thriving “Creative Economy” and helping mitigate the labour supply decrease as society ages.

Despite Korean youth being among the best performers in terms of their skill proficiencies as measured by the OECD Survey of Adult Skills (PIAAC), their labour force participation rates for those aged 15-29 were only 42.0% for men and 44.4% for women in 2013. This is low compared to OECD averages (64.1% and 53.0% respectively; OECD, 2013c). Moreover, although the youth unemployment rate is relatively low, it has risen since the end of 2012, reaching 10.9% in the first quarter of 2015. There is also a comparatively high number of youth (aged 15-24) who are neither in employment nor in education and training (NEET), particularly among those with tertiary degrees. However, this has to be qualified by the fact that many NEETs in Korea are studying to prepare recruitment tests and exams to work in the public sector or large firms, even though they are not counted as formally enrolled in an education or training course.

Figure 10. Generation gap in tertiary educational attainment
Percentages in 2012



Sources: OECD (2014b), *Education at a Glance: OECD Indicators*, OECD Publishing, Paris.

Skills mismatches are a primary reason for inactivity among the youth who face difficulties in the transition from school to work (OECD, 2013b). Due to the rapid increase in educational attainment over the past thirty years and the high proportion of tertiary graduates, the demand for such highly skilled workers may not have kept up with supply. However, rather than discouraging students who want to advance to tertiary education or matching highly skilled workers to lower skilled jobs, a better approach would be to enhance the labour market relevance of tertiary education and provide students with quality alternatives to tertiary education such as vocational education and training (VET) that have strong labour market outcomes.

Tertiary education and VET institutes could, for instance, introduce more work-based learning, strengthen the involvement of employers in the design and implementation of programmes, and engage practitioners with recent industry experience in the provision of education and training. High performing VET institutes, such as the Meister high schools, which have higher employment rates than tertiary education institutes, should be used as benchmarks for best practices. There is also a need to better coordinate amongst a variety of stakeholders to ensure a coherent policy response. Strengthening the mechanisms to involve several stakeholders around *specific objectives* and *realistic timelines* would be important in this regard.

Forthcoming OECD work shows that Korea has well developed analytical tools to assess current skills needs and to anticipate future skills imbalances. However, the effectiveness of the ‘skills anticipating’ tools is hindered by difficulties in agreeing on a coherent policy response to skills challenges across stakeholders.

Making the training system more relevant to the labour market

In Korea, skill levels differ widely across age groups. For example, literacy proficiency amongst young people is amongst the highest of those countries participating in the OECD Survey of Adult Skills, whereas those aged 45 and older are significantly below the OECD average. Due to forced early retirement and a lack of adequate skills, older people often continue to work under precarious conditions and face a high risk of falling into poverty (OECD, 2013d).

Participation of older workers in training programmes is low. Employers and jobseeker-assistance programmes are less willing to train older workers due to their lower long-term employability. This contributes to high labour market segmentation, with a high proportion of non-regular jobs among marginalised workers such as older workers. For this reason, participation in such training needs to be actively encouraged, supported and recognised by employers. Information about training opportunities should be easy to find and complemented with guidance and counselling services so that marginalised low-skilled workers can take advantage of them.

At the local level, a robust skills system requires integrated actions across employment, skills, and economic development policies. Korea has made significant progress toward decentralising the management of employment and skills policies. This has led to more joined up approaches and governance forums, such as the Local Employment Councils and Local Four Party Associations, which aim to better connect the supply of skills to demand (OECD, 2014b). There is an opportunity for Korea to give these partnerships greater flexibility in the design of skills strategies and task them with the mandate to work with employers to promote skills utilisation policies. This can be of particular benefit to SMEs.

Key OECD Recommendations

- Improve the tertiary education and VET system through work-based learning, involving employers in curriculum design, and industry experts in course instruction.
- Provide and encourage training for adults over their life cycle to maintain and upgrade the skills as required by the labour market through partnerships with relevant stakeholders and recruiting practitioners from the industry to be teachers.
- Continue developing Skills Assessment and Anticipation tools to inform education and employment policy on current and future skills needs.
- Support higher quality jobs by focusing on the better utilisation of skills and productivity at local level, while also considering mechanisms for strengthening engagement with employers, especially SMEs.

6. Reforming the Labour Market to Support Social Inclusion and Potential Growth

Korea's labour market is relatively strong overall, with the lowest unemployment rate of any OECD economy at end-2014, and with long-term unemployment nearly non-existent. However, by addressing low participation rates among some population groups – women, youth and older people – while ensuring that they can find high-quality jobs that match their skill-sets, Korea could off-set the impact of an ageing society on labour supply while shifting to a more inclusive growth model. Further investment in Korea's Early Childhood Education and Care system can raise standards and encourage more women to join the workforce.

While the employment rate of working-age men is 76% in Korea, a little above the OECD average (74%), the 55% rate for women is slightly below the OECD average (58%). This 21 percentage-point gender gap is the largest in the OECD. In addition, the rate for youth (40.7%) is significantly below the OECD average. Older workers also have lower employment rates than prime-age workers, due in part to the low average age of departure from firms (53). Raising participation rates for women, youth and older people would help Korea meet its 70% employment rate by 2017 while increasing the economic payoff to Korea's large investments in education in recent decades.

Labour market duality represents a significant policy challenge

Almost one third of employees in Korea are non-regular workers. Despite reforms in recent years, these workers are still paid much less than regular workers and have more limited access to social insurance and job protection, while mobility from non-regular to regular jobs is relatively low (OECD 2015f). There is a particular need to narrow the gap in employment protection between regular and non-regular workers, notably by simplifying and accelerating the remedy procedure for unfair dismissal. This could boost the level of GDP by 0.3% over a ten year time horizon. As well as being less likely to be in work at all, women, youth and older workers are also much more likely than prime-age men to be employed in non-regular work and in SMEs. This underlines the need for a twin-track approach to labour market reforms that aims both to reduce dualism and to reduce employment barriers for these groups.

Women: Korea's female employment rate profile by age has a marked "M-shape". The employment rate rises as young women leave school, but then falls during their late 20s and early 30s as they leave the labour market to care for their children. Women's employment rates rise again during their late 30s and early 40s, when their children are older. However, the incentive to return to the labour market is limited by the fact that the only jobs available to many women after a career interruption are low-paid and/or precarious.

In order to encourage more women to enter the workforce, Korea has modernised its social policies to support child development and parental work/life balance: men and women have an individual entitlement to paid leave for the duration of one year while the rapid development of the Early Childhood Education and Care (ECEC) system helped the average participation rates of children aged 0-2 increase from just under 4% in 2002 to 34% in 2013 and those of 3-5 year olds reached 87% by 2012. In both cases these rates exceed the OECD average (33% for 0-2 year olds and 82% for 3-5 year olds). However, there is a need for further investment in the ECEC system, in particular to improve its quality and promote the development of its professional staff. Combined with efforts to promote cultural change in the household and workplace, such investment can also have a positive impact on female labour force participation and the fertility rate. Further investing in childcare services promises particular scope to support economic growth, potentially boosting the GDP level by 0.6% over a ten year time horizon.

However, for these social policy changes to be more effective, workplace and household cultures need to facilitate greater gender equality in paid and unpaid work. Labour market reforms (Chapter 6) are needed to make it easier for mothers to return to regular employment after a period outside the labour force. In

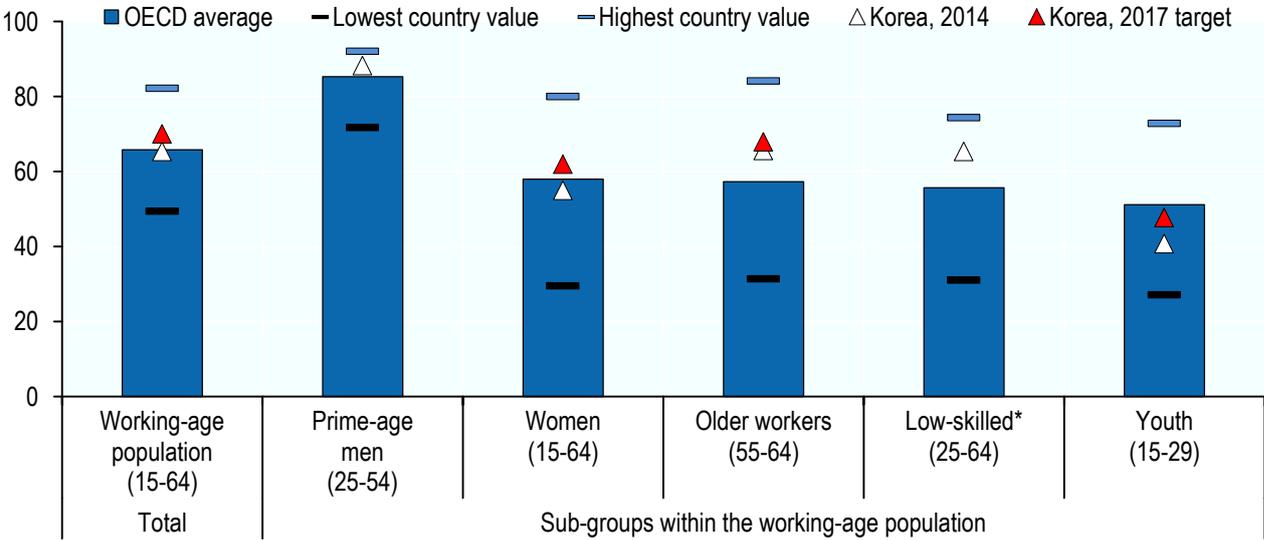
2014, Korean men only spent just 47 minutes per day on unpaid housework compared to 3 hours 28 minutes per day by women. To strengthen women’s labour force participation, Korean men should do more at home: countries where the gender gap in unpaid work is relatively small, such as Norway and Sweden, are also the countries with relatively high female participation rates.

Youth: The low youth employment rate in Korea includes a large proportion of youth with university degrees who are neither employed nor enrolled in formal education or training, reflecting a serious mismatch problem (see Chapter 5).

Older workers: Despite their relatively high employment rate, compared to the OECD average, older workers are underutilised; as they are typically forced to resign from their career jobs at a relatively young age. Often, they can only remain in the labour market by accepting low-paid non-regular work or marginal forms of self-employment.

To meet these challenges, in 2013 Korea launched the “Roadmap to a 70% employment rate”, which covers a wide range of policies, including: 1) improving work-life balance to enhance female participation rate by reducing the incidence of long working hours, encouraging parental leave and flexible work arrangements, and promoting quality part-time jobs; 2) improving vocational education options for youth by introducing an apprenticeship-based dual system and strengthening university-and-industry cooperation; 3) encouraging the employment of older workers through wage system reform, including promoting the “wage peak system”, which gradually reduces wages for older workers while deferring compulsory retirement, and improving employment services for middle-aged and older workers; and 4) reforming the in-work Earned Income Tax Credit (EITC) and the Basic Livelihood Security (BLS), the main social assistance programme to improve work incentives while expanding benefits to low-income persons.

Figure 11. Youth and women are key to reaching Korea’s 70% employment rate target
Employment rate in per cent, 2014 values and 2017 targets



Note: * data refer to 2013. OECD averages are population-weighted averages for all OECD countries, except that the average for low-skilled excludes Japan.

Source: OECD Employment and Labour Market Statistics and OECD 2015, *Education at a Glance Interim Report*.

While the *Roadmap* does not encompass a systematic attempt to tackle labour market duality, the tripartite dialogue initiated in September 2014 reached consensus on general guidelines for the structural labour market changes that are required, including reforms of employment protection and the enhancement of social protection, mutually beneficial relations between large firms and SMEs, and improved industrial relations. It is now essential that the government and the social partners translate these guidelines into effective legislation that implements ambitious reforms.

Key OECD Recommendations

- Adopt a more ambitious labour market reform package than foreseen in the Roadmap so as reduce labour market duality and to achieve the 70% employment rate goal by 2017.
- Limit interruptions to women's careers, and make them less disruptive to their long term career opportunities, by ensuring that parents' rights to two years of reduced working hours is respected by employers as well as by increasing the number of high-quality part-time jobs.
- Focus on improving quality in the ECEC system, for example by raising minimum qualifications (for example by introducing a national test) and enhancing professional education and development of staff (for example by improving re-training courses).
- Make greater use of the 'wage peak' system and improve incentives for compliance with the minimum mandatory retirement age law.
- Apply activation measures more effectively to BLS recipients and further expand the EITC.
- Reinforce labour inspection capacities and better enforcement of the social security system, as well as reducing employment protection for regular workers to reduce labour market duality.

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Annex: Quantifying Structural Reforms

The quantification exercise assesses the impact of structural reforms in the areas of product and labour markets that are recommended in this brochure on potential GDP over five and ten-year horizons. It relies on existing OECD empirical studies of the links between structural policies and productivity as well as on employment, and covers the following reform areas: i) product market regulation (PMR); ii) employment protection legislation (EPL); iii) active labour market policies; iv) female labour force participation; v) pension reform; vi) tax structure; and vii) R&D and innovation. Because the scope of those empirical studies is limited to empirically assessable indicators, the exercise only takes into account some aspects of policy recommendations. Therefore, the exercise should not be regarded as a comprehensive quantification of the wide ranging recommendations included in this brochure.

Reforms of Product Market Regulation (PMR)

Reforming product market regulations in ways that enhance competition can speed up the pace of convergence in productivity levels to the most technologically advanced economies. Stronger competition encourages firms to pursue efficiency and invest in innovation and knowledge-based capital. Lowering barrier to entrepreneurship facilitates the entry of firms that experiment with new ideas and technologies. PMR reforms can also boost aggregate productivity by raising the capacity of the economy to allocate capital and labour resources to fast-growing sectors.

An important tool for the impact analysis of product market reforms is the OECD PMR indicator which was elaborated in 1998 and has been updated every five years. While the PMR indicator is intended to capture economy-wide barriers to competition, entrepreneurship and trade and FDI, a strong emphasis is on regulations in upstream non-manufacturing sectors. This is because stringent PMRs in upstream sectors – typically network industries – curb multifactor productivity (MFP) growth in downstream sectors *via* stronger market power in those sectors. This raises the price of intermediate inputs, thereby reducing the competitiveness in downstream sectors, and their incentive to innovate. Estimates of the potential impacts of product market reform based on the PMR set of indicators point to a strong pay-off, with the long-term gains in living standards achieved relatively quickly (Bourlès et al., 2010).

Labour market reforms

Reforms in labour markets contribute not only to raising labour force participation and employment but also productivity. For instance, strict employment protection often leads to less efficient use of resources by making it more difficult for firms to respond quickly to changes in technology or product demand that require reallocation of staff or downsizing. Therefore, EPL reforms that reduce the costs of hiring and firing can support higher productivity. Indeed, stringent EPL has been found to weaken productivity in sectors where labour turnover is “naturally” high (Bassanini et al., 2009).

Well-designed activation policies can reduce unemployment directly by improving the job-matching process (Bassanini and Duval, 2006). Activation includes, but goes beyond public spending on various active labour market policies (ALMPs), such as providing public employment services with adequate resources to cope with existing caseloads, financing (re)training programmes or subsidising jobs.

A high proportion of women are largely excluded from the labour market in some countries, while in others they are overrepresented among (involuntary) part-time workers. Family-friendly policies and working conditions that enable fathers and mothers to balance their working hours and their family responsibilities facilitate women’s labour force participation or longer working hours. For instance, an increase in public childcare spending is found to increase female labour participation (Jaumotte, 2004).

Recommendations	Aspects of recommendations captured in the quantification
Fostering the creative economy	<ul style="list-style-type: none"> • Boosting R&D investment in public and private sectors
Easing the regulatory burden and promoting competition	<ul style="list-style-type: none"> • Shifting the focus from the quantity of regulations to their quality • Making the service sector a priority for regulatory reform
Investing in education and skills	<ul style="list-style-type: none"> • Providing training for adults over their life cycle to maintain and upgrade the skills as required by the labour market through partnerships with relevant stakeholders and recruiting practitioners from the industry to be teachers
Labour market reforms to promote participation and social inclusion	<ul style="list-style-type: none"> • Reducing the gap in employment conditions and social protection between regular and non-regular workers • Further development of childcare services

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