



ASIAN DEVELOPMENT OUTLOOK 2018

HOW TECHNOLOGY AFFECTS JOBS

APRIL 2018

HIGHLIGHTS

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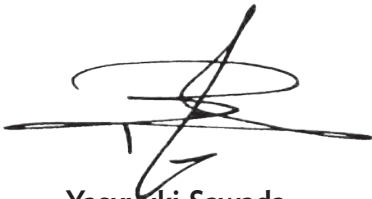
ADO 2018—Highlights

Developing Asia enjoys buoyant prospects as external demand remains strong. The region is forecast to expand by 6.0% in 2018, just 0.1 percentage points off the 2017 rate, and by 5.9% in 2019. Excluding Asia's high-income newly industrialized economies, growth should reach 6.5% in 2018 and 6.4% in 2019.

With oil prices edging up and robust consumer demand continuing, inflation is poised to pick up after dipping slightly last year. Consumer prices are projected to rise by 2.9% in both 2018 and 2019, or 0.6 percentage points more than in 2017.

Though prospects are firm, risks are clearly to the downside. Protectionist measures and retaliation against them could undermine the recent pickup in trade growth. In response to fiscal stimulus, the United States Federal Reserve may need to raise interest rates faster than currently expected, which could diminish capital flows to developing Asia.

New technologies drive higher productivity, the foundation for better-paid jobs and economic growth. While new technologies displace jobs, they also unleash countervailing forces that generate more jobs. As some workers may be left behind, governments in developing Asia should respond to this challenge by ensuring that workers are protected from the downside of new technologies and prepared to harness the new opportunities they provide. This will require coordinated action on skills development, labor regulation, social protection, and income redistribution.



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Turning strength into opportunity

Strong tailwinds but tricky crosscurrents

■ **Asia and the Pacific continues to enjoy steady growth.** The region picked up steam throughout last year to average 6.1% growth in gross domestic product (GDP), a 0.2 percentage point uptick from 2016. Excluding the high-income newly industrialized economies, growth was 6.6%. The strong showing reflected both solid export demand and rapidly expanding domestic demand, including in the People's Republic of China (PRC). Momentum is likely to moderate only slightly to 6.0% in 2018 and 5.9% in 2019, or 6.5% and 6.4% excluding the newly industrialized economies.

» **Growth accelerated across the major industrial economies.** Aggregate growth in the United States, the euro area, and Japan rose to 2.3% from 1.5% in 2016, while unemployment rates reached their lowest since the global financial crisis of 2008–2009. The pace of growth will continue at 2.3% in 2018, with US fiscal expansion sustaining growth for the group as a whole, before slowing to 2.0% in 2019. Gradual monetary tightening in the US is expected to keep inflation in check. Rising business confidence in the euro area and Japan will be supported by accommodative monetary and fiscal policies.

» **PRC growth accelerated on strong demand from home and abroad.** The service sector grew by 8% on buoyant domestic demand, and net exports expanded as trade in intermediate manufactures rebounded. Assuming mildly tighter monetary and fiscal policies in the PRC, growth is expected to moderate from 6.9% in 2017 to 6.6% in 2018 and 6.4% in 2019. Further progress on reforms such as strengthening financial sector regulation and supervision, and addressing debt issues would lay a foundation for solid macroeconomic stability.

» **India is set to rebound from a dip in growth following reform.** Growth in fiscal 2017 was estimated at 6.6%, 0.5 percentage points below the previous year. The demonetization of large banknotes in late 2016 had lingering effects on small business and private credit, and reform that introduced a national goods and services tax temporarily slowed business activity early in fiscal 2017. While industry and agriculture slackened, services grew by a solid 8.3%. Improved business regulation and buoyant tax revenue will bolster growth to the forecast horizon, as it accelerates to 7.3% in 2018 and 7.6% in 2019.

» **Growth in Southeast Asia is forecast steady this year and next.** Although an expansion of technology exports in 2017 will moderate somewhat, recovery in global commodity prices should continue to support exporters of primary goods. Growth in Indonesia, the Philippines, and Thailand will accelerate thanks to strong investment and domestic consumption, while Viet Nam will benefit from continued expansion of its industrial base. Southeast Asia is expected to maintain its 2017 growth rate of 5.2% in 2018 and 2019.

» **Events temper resource revivals in the Pacific and Central Asia.**

Growth in the Pacific will linger at the 2017 rate of 2.2% in 2018, following earthquake damage that has temporarily disrupted gas production in Papua New Guinea, before accelerating to 3.0% in 2019. Higher crude prices boosted growth in Central Asian oil producers in 2017, lifting subregional growth to 4.3%. However, as a rebound in industry in Kazakhstan moderates, growth in Central Asia is forecast to slow to 4.0% in 2018, picking up somewhat to 4.2% in 2019.

■ **Strong consumer demand and rising commodity prices will lift inflation.**

The region experienced broadly stable inflation at 2.3% in 2017, but higher incomes today and oil prices tomorrow will bring increases. With average Brent crude oil prices rising above \$60/barrel in 2018 and 2019 from \$54 in 2017, inflation is projected to accelerate to 2.9% in 2018 and 2019. Despite the pickup, moderated inflation expectations will hold price rises below the 10-year average of 3.7%. Both years will see accelerating price rises in all subregions except Central Asia, where price-stabilizing policy will seek to tame inflation that reached double digits in 2016.

■ **Developing Asia's trade rebound will taper modestly.** Exports grew in 2017 by 4.9% in real terms in the region's 10 largest economies, and imports by 7.7%. In US dollar terms, exports rose by 9.6%, with growth in the second half hitting 7.9% in the PRC and 16.5% in the five largest economies in Southeast Asia. Commodities and manufactures alike saw export growth, which was particularly strong for trade within Asia of intermediate manufactures for assembly into electrical and electronic goods, machinery, and equipment. Trade growth is expected to slow somewhat in 2018 and 2019. Despite the rebound in exports, the current account surplus of the PRC fell by 0.4 percentage points to equal 1.4% of GDP in 2017. This helped narrow Asia's current account surplus with the rest of the world to 0.5% of global GDP.

■ **Favorable as the growth outlook is, the risks to it are on the downside.** Risks to trade are high on the list. Protectionist trade measures implemented by the US so far in 2018 have not discernibly dented buoyant trade flows to and from developing Asia. However, further actions and retaliation against them could undermine the business and consumer optimism that underlies the regional outlook. Another risk is diminishing capital inflows if the US Federal Reserve needs to raise interest rates faster than markets expect to keep fiscal expansion from overheating the economy. The trade revival last year has, however, reinforced strong trade links within Asia and built up financial buffers in many Asian economies, in particular in recovering commodity exporters. Asia should therefore be in a strong position to withstand most shocks.

Private debt and economic growth

- **Developing Asia continues to accumulate private debt.** Since the global financial crisis of 2008–2009, the ratio of private debt to GDP has declined in the US and other advanced economies as companies and households strove to deleverage. In contrast, ratios of household and nonfinancial corporate debt to GDP have continued to rise in emerging markets, including those in Asia. In the PRC, for example, the corporate debt ratio rose from 96% of GDP at the end of 2008 to 163% at the end of the third quarter of 2017. In the same period, the household debt ratio rose from 50% to 67% in Malaysia, 74% to 94% in the Republic of Korea, and 45% to 68% in Thailand.
- **Does the private debt buildup pose a risk to regional growth?** Private debt accumulation spurs growth only in the short run. Evidence shows that the positive effect of household debt growth in emerging economies typically dissipates after 2 years, turning negative in the medium term. The pattern is broadly parallel in advanced economies. Similarly, corporate debt growth does not seem to have any persistent positive effect on output growth. Further, as the amount of private debt rises, the impact of additional debt on output growth becomes smaller.
- **The results argue for closely monitoring the buildup of private debt.** The region would benefit as well from macroprudential measures that help prevent excessive credit buildup. The accumulation of both household and corporate debt may pose a medium-term threat to the currently benign economic outlook for the region. However, the lack of a persistent positive effect on output suggests that not all of the added private debt is channeled into productive investments and activities. Strengthening regional financial systems would improve the quality of private debt.

Outlook by subregion

- **Most of developing Asia will pause after a pickup in 2017.** As only 14 of 45 individual economies are forecast to see growth accelerate in 2018, aggregate growth rates in most subregions are projected to be unchanged or lower this year. South Asia is the exception, as a rebound in India will lift growth above 7%, making it the fastest growing subregion in developing Asia. Across the region, domestic demand will remain as the key sustainer of growth. Central Asia and the Pacific will bounce back in 2019.
- **East Asia slows on moderating PRC growth and external trade.** Economic growth in East Asia picked up by 0.3 percentage points to 6.3% in 2017 as strong external and internal demand lifted every economy in the subregion. Growth accelerated to 6.9% in the PRC on robust exports and private consumption, and surging coal exports and mining investment lifted Mongolia's growth rate fourfold to 5.1%. Expansion in the PRC should moderate to 6.6% in 2018 and 6.4% in 2019 as economic policy leans further toward financial stability and a more sustainable growth trajectory. Other economies in the subregion will see lower growth as well, mainly on account of moderating export growth. These developments will tamp down East Asian economic expansion to 6.0% in 2018 and 5.8% in 2019. Inflation dipped in East Asia last year, reflecting moderation in the PRC, where food prices fell. It will trend higher from 1.6% in 2017 to 2.3% in 2018 and 2.2% in 2019 as food prices rise, the PRC deregulates prices, and wages improve in most economies.
- **South Asia anticipates revived growth after a 2-year slowdown.** Aggregate growth slipped 0.3 percentage points to 6.4% in 2017. This reflected slackening in India, where growth fell to 6.6% with the lingering effects of demonetization in 2016, businesses adjusting in 2017 to a new goods and services tax, and agriculture subdued. The South Asian giant is expected to bounce back to 7.3% in fiscal 2018 and firm to 7.6% in 2019 as the new tax regime improves productivity and as banking reform and corporate deleveraging take hold to reverse a downtrend in investment. Elsewhere in South Asia, growth will stay robust but generally not improve. The need to carry out revenue-enhancing fiscal reform and to strengthen economic policy will temporarily brake expansion in Bangladesh, Pakistan, and Sri Lanka. Growth in South Asia as a whole is forecast to rise to 7.0% in 2018 and 7.2% in 2019. Very modest food price rises in India following bumper harvests there pushed average inflation in South Asia down to 4.0% in 2017. Inflation is forecast to revive to 4.7% in 2018 and to 5.1% in 2019, mainly on higher oil prices.
- **Southeast Asia is poised to sustain a higher growth path.** Growth accelerated to 5.2% last year, 0.5 percentage points higher than in 2016. A turnaround in exports and robust domestic demand underpinned solid economic performances across the subregion. As export growth moderates from last year's rebound, stronger domestic demand—fueled by ambitious public infrastructure spending, solid foreign direct investment, and robust household consumption—should see the subregion sustain average annual growth at 5.2% this year and next. Growth this year in 8 of the 10 economies is projected to be equal or exceed the 2017 rate, but Malaysia and Singapore are likely to unwind from last year's rapid expansion toward their long-term potential growth rates. Inflation, having

edged up 0.7 percentage points to 2.8% in 2017, is seen stabilizing at about 3.0% this year and next, buoyed by strong domestic demand, higher minimum wages, hikes in administered prices, and rising international oil prices. Only Malaysia will see inflation cool in both 2018 and 2019 after changes to the price-setting mechanism for fuel and lubricants spiked transport costs in 2017.

- **Central Asia moderates after a notable recovery in 2017.** Average growth in the subregion rose to 4.3% from 2.7% a year earlier as recession ended in Azerbaijan and expansion accelerated in six other economies, particularly in predominant Kazakhstan. Growth slowed only in Uzbekistan, where sharp currency devaluation to unify the exchange rate and other economic reform forfeited some expansion last year for future growth. Following a strong pickup in growth last year, Kazakhstan is projected to slow to 3.2% in 2018 but bounce back to 3.5% in 2019 as investment quickens. With expansion moderating in most of its economies, Central Asia is projected to slow to 4.0% in 2018 and reaccelerate to 4.2% in 2019 with faster growth in all eight countries. A more stable exchange rate almost halved inflation in Kazakhstan, trimming average inflation in the subregion to 9.2% in 2017 from 10.6% in 2016, even though inflation accelerated in the other seven economies, particularly in Uzbekistan. As recent currency devaluations slip further into the past, inflation is projected to settle at 8.5% in 2018 and 7.9% in 2019.
- **The Pacific will grow more slowly than the other subregions.** Growth at 2.2% in 2017 was determined largely by events in Papua New Guinea, the largest Pacific economy, where growth at a similar rate reflected a slowdown in agriculture and contraction in oil and gas. Elsewhere, performance was mixed, with Palau and Timor-Leste contracting. While these two economies will bounce back in 2018, all others will either maintain the pace or slow. Following an earthquake in February, growth in Papua New Guinea is expected to falter to 1.8%, but recovery in Timor-Leste is expected to keep growth in the subregion as a whole unchanged at 2.2% in 2018. An expected recovery in Papua New Guinea and continuing strength in Timor-Leste should contribute to aggregate growth of 3.0% in 2019. Although inflation in the Pacific fell 1.0 percentage point to 3.8% in 2017, prices rose faster in eight economies, half of them escaping deflation in the previous year. As higher global commodity prices will boost inflation in most economies in 2018, subregional inflation is forecast to reach 4.1% in 2018 before tapering to 3.9% in 2019.

How technology affects jobs

Summary

- ❖ New technologies drive higher productivity, the foundation for better-paid jobs and economic growth.
- ❖ Despite growing concern that new technologies could cause widespread job loss, optimism about developing Asia's job prospects springs from several observations:
 - ◆ New technologies often automate only some tasks of a job, not the whole job. ATMs, for example, have not replaced bank tellers but broadened their role in customer relationship management.
 - ◆ Job automation goes ahead only where it is both technically and economically feasible. Both requirements tend to be met in capital-intensive manufacturing, where employment shares were already low in 2015.
 - ◆ Rising demand offsets job displacement driven by automation. In 2005–2015, jobs created by rising domestic demand more than compensated for job losses to technological advances.
 - ◆ Technological change and economic growth create new occupations and industries. Many new job titles have arisen in ICT, and new types of jobs will arise in health care and education and in finance, insurance, real estate, and other business services.
- ❖ Nevertheless, new technologies alter the skills required of the workforce and may cause unemployment as some firms downsize or close. They make the less-skilled more likely to experience lower wage growth, exacerbating income inequality.
- ❖ Governments should respond to these challenges by ensuring that workers are protected from the downside of new technologies and able to harness the new opportunities they provide. This will require coordinated action on skills development, labor regulation, social protection, and income redistribution.
- ❖ Governments should use new technologies in education and skills development, as well as to deliver such public services as social protection programs. Government support for new technologies must benefit people and protect their rights and privacy.

Rising concern over technology displacing jobs

- **Developing Asia has done remarkably well in creating jobs for its workers.** Over the past 25 years, the region has created 30 million jobs annually in industry and services. Job creation has come with improved productivity, rising earnings for workers, and large reductions in poverty. Contributing to this process are shifts in employment from sectors with low productivity and pay, typically subsistence agriculture, to sectors with higher productivity and pay, typically in modern industry and services. But a larger part of productivity gains come from technological advances within sectors, such as high-yielding crop varieties in agriculture, modern machine tools in manufacturing, and information and communication technology (ICT) in services. The creation and adoption of new

technologies is driven not only by investments in education, infrastructure, and research and development, but also by international trade and foreign direct investment. At the same time, macroeconomic stability and an investment climate conducive to business have provided a foundation for technological advance, sustained growth, and job creation.

- **Technological advances fuel productivity but also threaten jobs.** Emerging technologies such as robotics, three-dimensional printing, artificial intelligence, and the internet of things will help drive future prosperity. Yet they also pose challenges for workers. The apparel and footwear industries, for example, are experimenting with completely automated production. Similarly, it is becoming technically feasible to automate more complex service tasks such as customer support. These developments have raised concern that automation could cause widespread job loss, slow wage growth, and worsen income inequality in developed and developing economies alike. Some studies indicate that over half of the jobs in some economies in developing Asia are at risk.

Reasons for optimism on job prospects

- **New technologies often automate only some tasks of a job, not the whole job.** Any job consists of a number of tasks, and the tasks can be classified as either routine or not, and either manual or cognitive. Automation targets mainly routine tasks, such as soldering components onto a circuit board repeatedly on an assembly line, which is both routine and manual, or counting and dispensing cash in a bank, which is routine and cognitive. While task automation may displace some types of jobs, in other cases it restructures the job such that machines handle only the routine tasks, freeing up workers to focus on more complex tasks. The introduction of ATMs, for example, changes the job for bank tellers to one of customer relationship management.
- **Job automation goes ahead only where both technically and economically feasible.** Data on industrial robots in Asia show the two largest users to be electrical and electronics industries and automobile manufacturers, each accounting in 2015 for 39% of the total robot use but, together, only 13.4% of total manufacturing employment. By contrast, producers of textiles, apparel, and leather goods and food and beverages together accounted in the same year for only 1.4% of robot usage but 31.4% of manufacturing employment. This pattern reflects both technological and economic feasibility. More technological sophistication is required to give a robot the dexterity to stitch cloth, for example, than to handle large metal parts. At the same time, low pay in apparel and footwear is a disincentive to automation. In 12 economies in developing Asia that account for 90% of employment in the region, an estimated 40% of manufacturing and service jobs entail mostly routine tasks, either manual or cognitive. However, many of these jobs are unlikely to be lost. Some will be restructured instead, and automating others will not be technically or economically feasible.
- **Rising demand offsets job displacement driven by automation.** New technologies allow a given output to be produced by fewer workers. While some workers are displaced, improved productivity and lower prices often spur higher demand. Increased demand may even expand the number of jobs

in factories that automate part of their production process. Moreover, the productivity benefits of new technology in one industry lower production costs in downstream industries through input–output channels, contributing to increased demand and employment across industries. An increase in demand and production in one industry heightens demand for upstream industries as well.

- » **Data show rising demand more than compensating for jobs displaced by technology.** Using productivity as a broad measure of technological advance, input–output analysis of 12 economies in developing Asia was conducted for 2005–2015, when modern machine tools and ICT equipment spread into factories and offices in a big way. If output had remained the same, higher productivity would have brought a 66% decrease in employment, equal to 101 million jobs per annum. However, concurrently higher demand for goods and services more than offsets this with an associated 88% increase in employment, equal to 134 million jobs per annum.
- » **Production returning to advanced economies may not threaten employment in Asia.** Even if automation in advanced economies attracts some factories back to the home market, this is unlikely to happen on a large scale for lack of economic feasibility. In addition, in the 12 Asian economies studied, employment in 2015 that depended directly and indirectly on final demand in advanced economies was only 10%. Developing Asia is growing fast and relying less on exports and more on consumption-driven growth as a rising middle class generates higher demand for goods and services, including those that are traditionally export-oriented. This suggests that so-called “reshoring” may not be a major threat to employment in the region.
- **Technological change and economic growth create new occupations and industries.** New technologies give rise to new occupations and industries. Auto repair workers and car salesman emerged alongside the car industry in the 1900s, and more recently software engineers and app developers accompanied the development of ICT. In addition, the greater complexity of modern production and growing demand for new personal services in health care, education, finance, and others areas are countervailing forces against job loss to technology as they create new occupations.
- » **New types of jobs have emerged to handle new technologies.** A detailed analysis of occupation titles in India, Malaysia, and the Philippines found that 43%–57% of new job titles that emerged in the past 10 years are in ICT. A large share of new job titles emerged in one of India’s fastest growing occupation categories: craft and related workers. This was driven mainly by the different types of specialized technicians needed to work with computer-controlled machines. Such trends will continue.
- » **Comparing occupations across regions shows scope for job growth in many sectors.** Health care and education provide 15% of employment in the US, for example, while finance, insurance, real estate, and other business services provide 19%. In lower- and middle-income economies in developing Asia analyzed, health care and education provide only 3.5%–6.0% of jobs, and business services 1.5%–6.0%, suggesting considerable scope for job growth in these services.

Some worker concerns remain

- **Even as new technology creates jobs, automation will hurt workers in routine and manual jobs.** New jobs will appear, but they may require skills that such workers do not possess. Further, as firms and industries adjust to new ways of producing and distributing goods and services, the resulting disruptions along existing supply chains may cause unemployment. In addition to more job losses, routine and manual workers will likely experience lower wage growth, worsening income inequality.
- » **Demand will grow most for nonroutine cognitive, social, and ICT tasks.** Jobs requiring routine and manual tasks will be less in demand. This is suggested by analysis of five economies in developing Asia showing that, over the past decade, annual expansion of employment in jobs intensive in nonroutine cognitive tasks, social interactions, and the use of ICT was 2.6 percentage points faster than total employment. Average real wages for these nonroutine jobs increased faster than for routine and manual jobs.
- » **Workers with weaker foundational skills could find themselves left behind.** Foundational skills—those that are best learned as a schoolchild, encompassing not only basic reading, writing, numeracy but also digital literacy and teamwork ability—support transition into jobs that require higher intensity of nonroutine and cognitive tasks. Without adequate skills development or retraining, workers with weaker foundational skills face hurdles in seizing the opportunities that new technologies provide.
- **Even some cognitively oriented but routine jobs may be displaced.** The business process outsourcing (BPO) industry is a case in point. Industry experts estimate that, in 2016, 47% of BPO workers in the Philippines worked at process-driven tasks requiring little abstract thinking. With the advent of new technologies, such jobs are likely to decline as a share of all BPO jobs. There will be new opportunities driven by greater demand for more complex BPO services, which can expand along with technologies. But they will require more specialized training. Workers employed as medical transcriptionists, for example, may lose their jobs to increasingly sophisticated software able to recognize voice, text, and image signals. Transitioning these workers into nonroutine cognitive jobs in the BPO industry will require retraining and skills development.

The role of government in harnessing technology for workers

- **Governments must pursue education reform and promote lifelong learning.** Schools need incentives to strengthen foundational skills that enable individuals to learn—and to relearn. For imparting the specialized skills needed to work with new technologies, universities and institutions specializing in technical and vocational education and training (TVET) are key, and they will have to cater not only to the rising number of graduates from secondary education but also to adults seeking to upgrade their skills or retrain. These institutions must be better integrated, as through credit transfer systems that enable TVET graduates to pursue higher education and university students to acquire specific technical skills.

- **Labor market flexibility needs to be accompanied by programs that support the unemployed.** Labor markets will need to be flexible to accommodate the reallocation of labor across firms and industries necessary to realize the benefits of new technologies. Some governments need to eliminate excessive regulatory barriers to hiring and firing. All governments must pursue active labor market programs that provide job placement services to match unemployed workers with emerging employment opportunities, as well as training and retraining programs that equip workers with skills in high demand.
- **Social protection systems must be strengthened.** Workers need protection from income losses on account of unemployment. Social protection systems are essential as well for workers who may still be employed but in low-paid informal jobs. Systems need to be strengthened in terms of unemployment benefits, expanded health insurance, public works programs, and income transfers. Minimum wage laws should complement the role of social protection in supporting workers' welfare and tackling widening inequality.
- **Tax policies must fund social protection and counter widening income inequality.** The actions needed, as noted above, on education and skills development, active labor market programs, and social protection will help address worsening inequality. Funding these initiatives will require governments to raise more revenue. Broadening the tax base and improving tax administration are important, especially because government revenue is a low share of gross domestic product in many Asian countries. Additionally, scope exists to make income taxes more progressive and to expand receipts from taxes on capital gains, inheritance, and property, which will raise more revenue and narrow inequality.
- **New technologies can facilitate skills development, job-matching, and social protection.** Machine learning and big data analytics are increasingly able to personalize services. Adaptive learning technology, for example, changes the content taught and its sequence in response to student performance. This technique has enhanced learning outcomes in schools. New technologies can improve job-matching by assessing and monitoring the evolution of occupations and providing users with instant feedback on what skills employers seek and how to acquire them, or what job is best for career growth. Finally, technological advances in biometric identification can improve how social protection programs function by reducing costs, overcoming implementation challenges in sophisticated unemployment benefit systems, and enabling the tracking of job-placement services.
- **Governments must ensure that new technologies develop in ways that benefit people and protect their rights.** Given the central role the internet plays in new technologies, developing a nationwide broadband backbone and other ICT infrastructure is essential, as is basic infrastructure for electricity supply and transport. Public investments are needed to extend internet access to remote and lagging regions. Appropriate regulation of mobile and internet providers is needed to ensure affordable services. Governments need to come to grips with the protection of personal data and privacy. Competition policy has to evolve to ensure that large technology firms abide by the norms of fair competition. Appropriate public policy interventions are critical to ensure that new technologies serve economic and social development.

GDP growth rate and inflation, % per year										
	Growth rate of GDP					Inflation				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Central Asia	3.1	2.7	4.3	4.0	4.2	6.3	10.6	9.2	8.5	7.9
Armenia	3.2	0.2	7.5	4.0	4.2	3.7	-1.4	1.0	2.7	2.2
Azerbaijan	1.1	-3.1	0.1	1.7	2.0	4.0	12.4	12.9	7.0	8.0
Georgia	2.9	2.8	5.0	4.5	4.7	4.0	2.1	6.0	3.5	3.0
Kazakhstan	1.2	1.1	4.0	3.2	3.5	6.6	14.6	7.4	6.8	6.2
Kyrgyz Republic	3.9	4.3	4.6	3.5	4.0	6.5	0.4	3.2	4.0	4.5
Tajikistan	6.0	6.9	7.1	6.0	6.5	5.1	6.1	6.7	7.5	7.0
Turkmenistan	6.5	6.2	6.5	6.5	6.7	6.4	6.0	8.0	8.0	8.0
Uzbekistan	7.9	7.8	5.3	5.5	5.6	8.5	8.0	14.4	16.0	14.0
East Asia	6.1	6.0	6.3	6.0	5.8	1.3	1.9	1.6	2.3	2.2
Hong Kong, China	2.4	2.1	3.8	3.2	3.0	3.0	2.4	1.5	2.2	2.1
Mongolia	2.4	1.2	5.1	3.8	4.3	6.6	1.1	4.3	8.0	7.0
People's Republic of China	6.9	6.7	6.9	6.6	6.4	1.4	2.0	1.6	2.4	2.3
Republic of Korea	2.8	2.8	3.1	3.0	2.9	0.7	1.0	1.9	1.9	2.0
Taipei, China	0.8	1.4	2.9	2.9	2.8	-0.3	1.4	0.6	1.1	1.1
South Asia	7.4	6.7	6.4	7.0	7.2	4.9	4.5	4.0	4.7	5.1
Afghanistan	1.3	2.4	2.5	2.5	2.5	0.7	4.4	5.0	5.0	5.0
Bangladesh	6.6	7.1	7.3	7.0	7.2	6.4	5.9	5.4	6.1	6.3
Bhutan	6.2	7.3	7.5	7.1	7.4	6.6	3.3	4.3	4.6	5.4
India	8.2	7.1	6.6	7.3	7.6	4.9	4.5	3.7	4.6	5.0
Maldives	2.2	6.2	6.5	6.7	6.8	1.0	0.5	2.8	3.1	3.0
Nepal	3.0	0.0	6.9	4.9	5.5	7.2	9.9	4.5	5.5	6.0
Pakistan	4.1	4.5	5.3	5.6	5.1	4.5	2.9	4.2	4.5	4.8
Sri Lanka	5.0	4.5	3.1	4.2	4.8	3.8	4.0	7.7	5.2	5.0
Southeast Asia	4.6	4.7	5.2	5.2	5.2	2.8	2.1	2.8	3.0	3.0
Brunei Darussalam	-0.4	-2.5	0.8	1.5	2.0	-0.4	-0.7	-0.2	0.1	0.1
Cambodia	7.0	7.0	7.0	7.0	7.0	1.2	3.0	2.9	3.2	3.5
Indonesia	4.9	5.0	5.1	5.3	5.3	6.4	3.5	3.8	3.8	4.0
Lao People's Dem. Rep.	7.3	7.0	6.8	6.8	7.0	1.3	1.6	0.8	2.0	2.5
Malaysia	5.0	4.2	5.9	5.3	5.0	2.1	2.1	3.8	2.6	1.8
Myanmar	7.0	5.9	6.8	6.8	7.2	10.0	6.8	5.3	6.2	6.0
Philippines	6.1	6.9	6.7	6.8	6.9	1.4	1.8	3.2	4.0	3.9
Singapore	2.2	2.4	3.6	3.1	2.9	-0.5	-0.5	0.6	0.9	1.4
Thailand	3.0	3.3	3.9	4.0	4.1	-0.9	0.2	0.7	1.2	1.3
Viet Nam	6.7	6.2	6.8	7.1	6.8	0.6	2.7	3.5	3.7	4.0
The Pacific	8.1	2.4	2.2	2.2	3.0	4.3	4.8	3.8	4.1	3.9
Cook Islands	3.2	8.8	3.5	3.5	3.0	3.0	-0.1	-0.1	0.5	1.0
Federated States of Micronesia	4.9	-0.1	2.0	2.0	2.0	0.0	-1.0	0.5	1.0	1.0
Fiji	3.8	0.4	3.9	3.6	3.3	1.4	3.9	3.3	3.0	3.0
Kiribati	3.5	1.8	2.5	2.3	2.3	0.6	0.7	2.2	2.5	2.5
Marshall Islands	-0.4	1.9	4.0	2.5	2.5	-2.3	-1.5	0.5	1.0	1.0
Nauru	2.8	10.4	4.0	-4.0	0.5	11.4	8.2	5.0	2.0	2.0
Palau	11.4	0.5	-0.5	3.0	3.0	2.2	-1.3	1.0	1.5	1.5
Papua New Guinea	10.5	2.0	2.2	1.8	2.7	6.0	6.7	4.7	5.0	4.5
Samoa	1.6	7.1	2.5	0.5	2.0	1.9	0.1	1.4	2.0	3.0
Solomon Islands	2.6	3.4	3.2	3.0	3.0	-0.5	1.1	0.1	2.5	3.0
Timor-Leste	4.0	5.3	-2.0	3.0	5.5	0.6	-1.3	0.6	2.0	3.0
Tonga	3.7	3.1	2.8	-0.3	1.9	-1.0	2.6	7.4	3.8	0.5
Tuvalu	2.6	3.0	3.2	3.0	3.0	3.2	3.5	2.9	2.5	2.8
Vanuatu	0.2	3.5	3.5	3.2	3.0	2.5	0.9	3.2	4.8	2.5
Developing Asia	6.0	5.9	6.1	6.0	5.9	2.2	2.4	2.3	2.9	2.9
Developing Asia excluding the NIEs	6.6	6.4	6.6	6.5	6.4	2.4	2.7	2.4	3.0	3.0

Note: The newly industrialized economies (NIEs) are Hong Kong, China; the Republic of Korea; Singapore; and Taipei, China.

Asian Development Outlook 2018 Highlights

How Technology Affects Jobs

The full report is available on the ADB website at <http://www.adb.org/ado2018>.

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