

02

Global and
Regional Trends
and Prospects

Global and Regional Trends and Prospects

The next six years is likely to be a period not just of major change and growing uncertainties, but also of great possibilities. To plan appropriately for the future, it is important to be familiar with the inter-related trends in various areas such as economics, politics, demographics, technology, and environment, both at the international and regional levels.

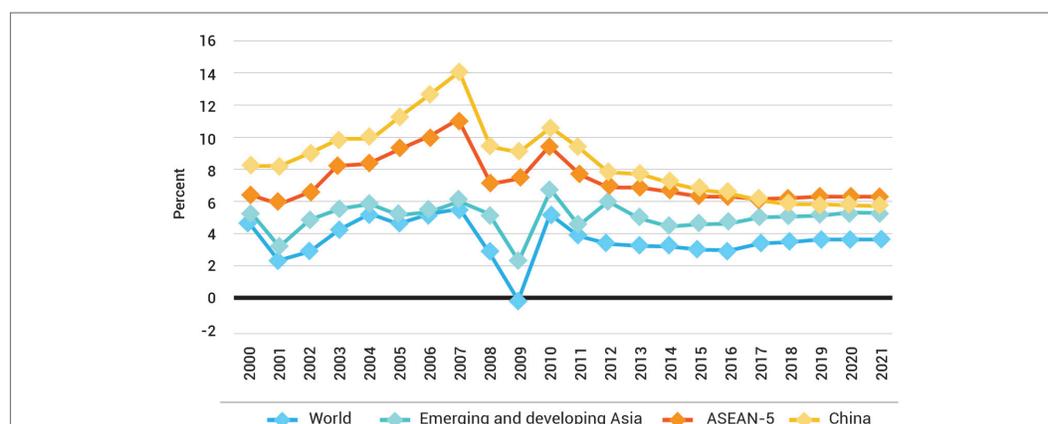
Economic Trends

Muted Global Economic Recovery

Since the 2008-2009 global financial crisis, global economic growth has been sluggish, without any immediate prospect of renewed economic vigor.¹ From an average growth of 5.1 percent in 2003-2007, global output growth slowed to an average of 3.2 percent in 2008-2015.²

After a weak outturn in 2016 (estimated at 3.1%), economic activity is expected to accelerate slowly in the medium term. Overall though, the global economy is seen to remain weak, with average growth rising only slightly to 3.6 percent in 2017-2021. Moreover, the outlook is clouded by uncertainty on the policy stance of the new administration in the United States of America, which may have global repercussions³.

Figure 2.1 GDP Growth



Source: International Monetary Fund, World Economic Outlook database, October 2016

¹ Hill, Hal. 2016. Setting the Scene: the Global and Regional Context. Unpublished manuscript

² IMF. October 2016. "Annual growth of world output at purchasing-power-parity weights." World Economic Outlook Database.

³ IMF. January 2017. World Economic Outlook Update

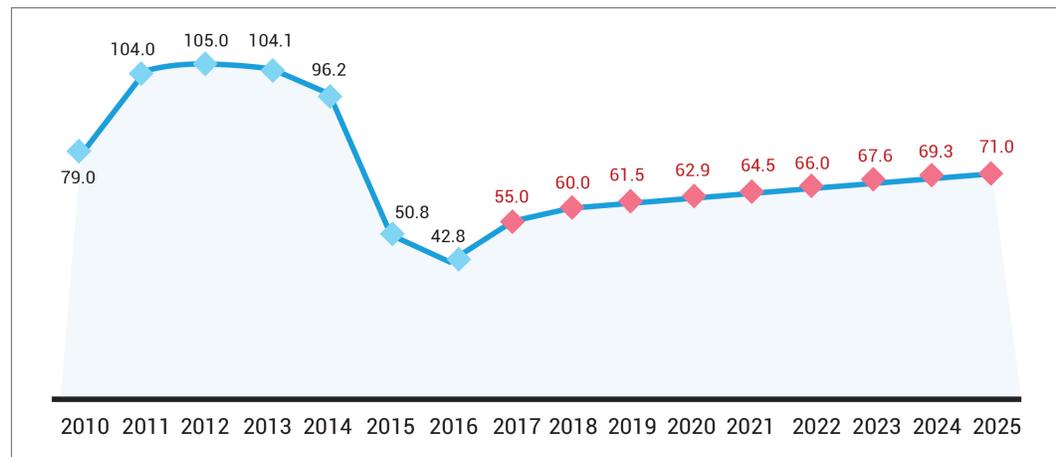
Economic growth in emerging markets and developing economies in Asia has likewise slowed from an average of 9.5 percent in 2003-2007 to 7.5 percent in 2008-2015. This is largely driven by the slowdown in China from an average of 11.7 to 8.6 percent growth during the same periods. Growth from 2017-2021 is expected to slow down further to an average of 6.3 percent in emerging Asia and 6.0 percent in China.

In the ASEAN-5 (Association of Southeast Asian Nations: Indonesia, Malaysia, Philippines, Thailand, and Vietnam), the

slowdown was not as pronounced, with 5.7 percent average growth in 2003-2007 and 5.1 percent in 2008-2015. The region's economy is expected to gradually recover with growth averaging at 5.4 percent in 2017-2022.

Oil prices are also expected to rise gradually following the agreement among OPEC members and several other major producers to limit supply. Nevertheless, oil prices are not expected to return to pre-2014 levels given the rise of shale oil, in addition to increasing the adoption of renewable energy and conservation measures.

Figure 2.2 Average Crude Oil Price (in USD/bbl)



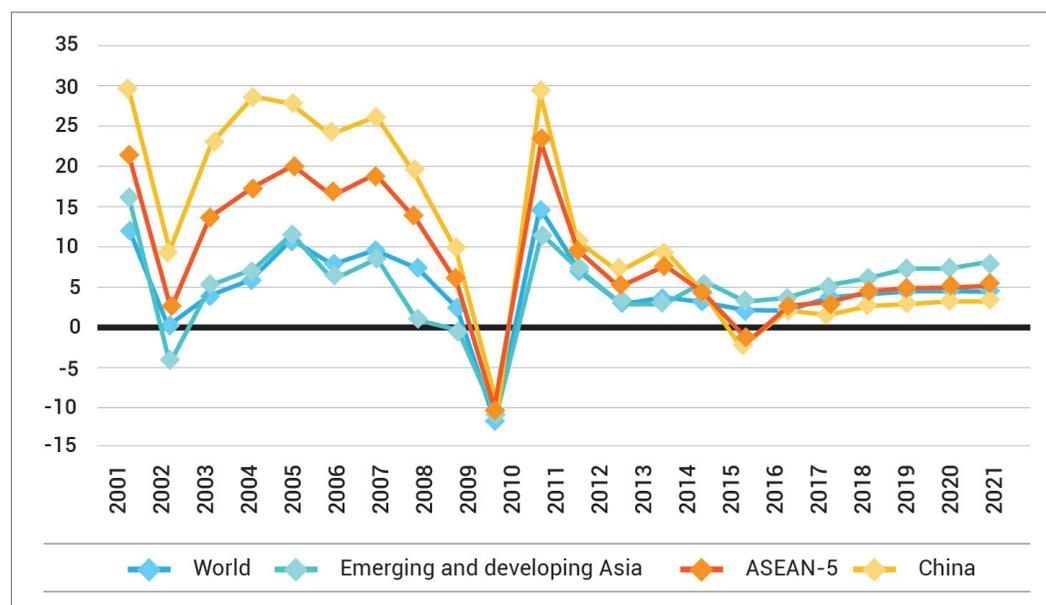
Source: Actual Data from World Bank Commodity Price Data – the Pink Sheet (January 2017); Forecasts in red from World Bank Commodity Markets Outlook (January 2017)

Sluggish International Trade

Growth in global trade (export volume) also slowed significantly from an average of 8.3 percent in 2003-2007 to 3.0 percent in 2008-

2015. World merchandise trade volume is expected to have grown by just 2.2 percent in 2016, the slowest since the global financial crisis. Export growth is expected to improve only slightly to an average of 3.9 percent in 2017-2021.

Figure 2.3 Merchandise Exports Volume Growth



Source: International Monetary Fund, World Economic Outlook database, October 2016

In the face of the trend toward inward-looking policies and protectionism, concluding preferential or multilateral trade agreements may become increasingly difficult. This comes with the risk of igniting trade wars or ignoring established international rules in trade and commerce.

Nevertheless, the fundamental trends driving increased global economic integration are likely to remain. This includes the rise of global production networks (GPNs) and buying chains, much of them under the auspices of multinational enterprises. GPNs already account for about half of intra-East Asian trade and intra-ASEAN trade, most of them in electronics⁴.

The sluggish growth in 2012-2014 and the magnitude of the decline in trade

of goods and services in 2015 suggest a potential change in the dynamics behind the international integration process. The fall in commodity prices and the appreciation of the US dollar are the factors that contribute most to the nominal fall in world trade. Another contributing factor is the shortening of global value chains. Some countries, including those in East Asia, may be re-shoring and consolidating manufacturing production processes⁵.

Technological change – which has led to declining transport costs – and the internet revolution have made a dramatic effect in lowering the costs of business within and across countries, including in the services sector⁶. Many business services can now be provided over the internet at greatly reduced cost, and this trend is likely to accelerate⁷.

⁴ Hill, Hal. 2016. Setting the Scene: the Global and Regional Context. Unpublished manuscript

⁵ UNCTAD. December 2016. Key Indicators and Trends in International Trade

⁶ Hill, Hal. 2016. Setting the Scene: the Global and Regional Context? Unpublished manuscript

⁷ Goswami et al. 2012. Exporting Services: A Developing Country Perspective. Washington DC: World Bank

Surge in Foreign Investments

Prior to the global financial crisis, global foreign direct investment (FDI) inflows averaged USD1.1 trillion from 2003-2007. This increased to an average USD1.4 trillion between 2008 and 2015. In 2015, global flows of FDI rose by about 40 percent, to USD1.8 trillion, the highest level since the global economic and financial crisis began in 2008. However, this growth did not translate to a proportionate expansion in productive capacity in all countries.

For developing Asia, however, FDI inflows increased by 79 percent from USD237 billion in 2003-2007 to USD424 billion in 2008-2015. In 2015, this region remained the largest recipient of FDI while flows declined steeply among countries transitioning to a market economy in Southeast Europe and the Commonwealth of Independent States⁸.

An increase of 16 percent in FDI inflows to USD541 billion for developing Asia in 2015 was primarily driven by increased FDI in East and South Asian economies. In East Asia, FDI rose by 25 percent to USD322 billion, reflecting large equity investments related to a corporate restructuring in Hong Kong, China, and dynamic FDI flows to the services sector of China.

ASEAN received only USD52 billion in FDI on average in 2003-2007, but this increased by 93 percent, to USD100.2 billion on average, in 2008-2015. In 2015, FDI in low-income economies such as Myanmar and Vietnam soared, but this was offset by the

lackluster performance of higher-income countries, including Indonesia, Malaysia, and Singapore.

Hindered by the current global and regional economic slowdown, FDI inflows to developing Asia are expected to decline in 2016 by about 15 percent, reverting to their 2014 level. Data on cross-border merger and acquisition sales and announced greenfield investment projects support the expected decline. However, flows to Asian economies such as China, India, Myanmar, and Vietnam are likely to see a moderate increase in inflows in 2016.

Over the medium term, global FDI flows are projected to resume growth in 2017 and to surpass USD1.8 trillion in 2018, reflecting an expected increase in global growth.

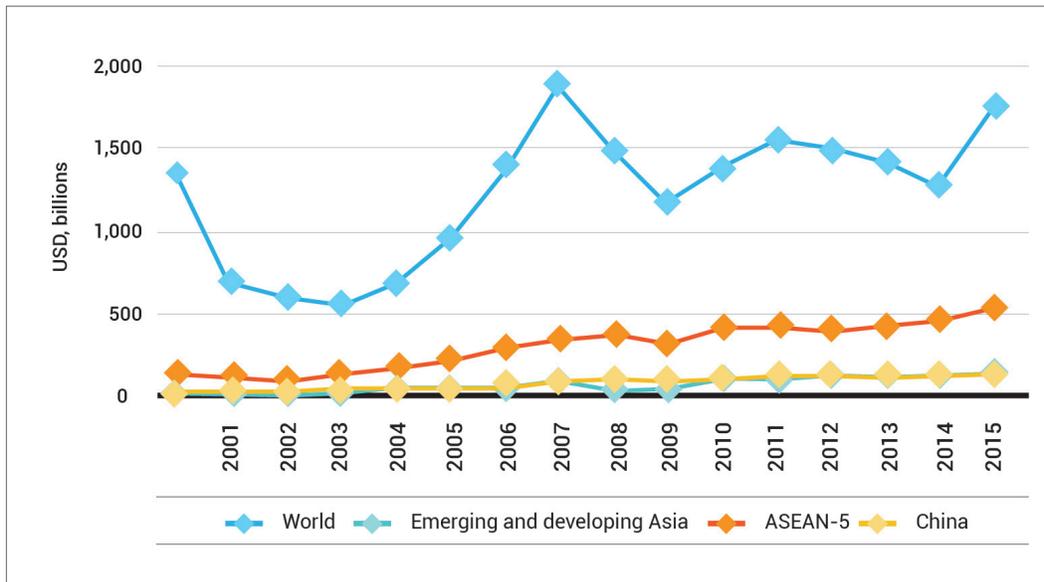
Despite the decline in outflows from developing Asia by 17 percent, at USD332 billion, the region's outward FDI in 2015 remained the third highest ever. Outward FDI from a number of Asian economies, including China and Thailand, increased. With outflows worth USD128 billion, China was the third largest investing country worldwide, after the United States of America and Japan.

There are indications that intraregional investments are rising, and among the most important industries driving this development are infrastructure and electronics. In 2015, 53 percent of the value of greenfield projects came from developing Asia, particularly from China, India, the Republic of Korea, and Singapore.⁹

⁸ UNCTAD, World Investment Report 2016

⁹ UNCTAD, October 2016. Global Investment Trend Monitor

Figure 2.4 FDI Inflows



Source: UNCTAD database

Asynchronous Monetary Policy in Advanced Economies

With the improved performance of the US economy, the Federal Reserve has started raising its policy rates. Consequently, the International Monetary Fund expects a less gradual normalization of monetary policy and some fiscal stimulus¹⁰. The

fiscal policies considered by the new US Administration, including reducing taxes and increasing infrastructure spending, are likely to raise the budget deficit and lead to higher interest rates. On the other hand, monetary authorities in the European Union (EU) and Japan are likely to maintain their accommodative stance in order to support the slow recovery of their economies. These unaligned policies produce volatilities in capital flows and in the exchange rate.

¹⁰ IMF, January 2017. World Economic Outlook Update

Political Trends

Populist and Protectionist Tendencies

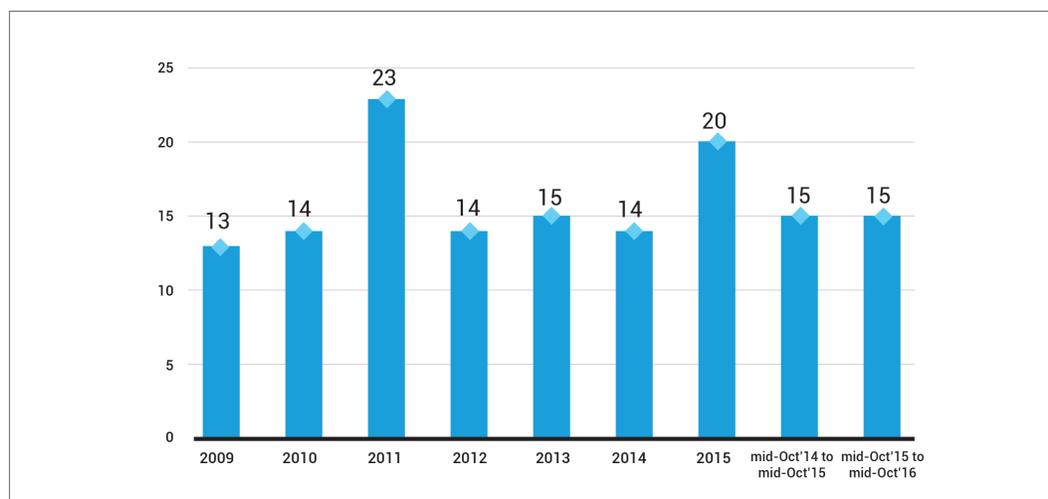
World Trade Organization reports indicate that during the global financial and economic crises, there was a modest increase in protectionist pressures. The number of new measures remains high and the rollback of existing trade-restrictive measures continues to be slow. In addition, the rate of trade facilitating measures applied each month declined against the previous period, remaining below the 2009-2015 trend¹¹.

Trade remedy investigations were the most popular trade-restrictive measures, representing 72 percent, which is above the average share observed since 2009. The G20 economies initiated much more trade remedy actions (61) than they terminated (36) during the latest reporting

period. Metal products (particularly steel), chemicals, plastics, and rubber account for most of anti-dumping and countervailing initiations during the review period.¹²

As a result, the share of global trade affected by such restrictions gradually rose. As of the most recent reporting period, the share of world imports covered by import-restrictive measures implemented since October 2008 and still in place is 5 percent and the share of G20 imports covered is 6.5 percent. Of the 1,671 trade-restrictive measures recorded for G20 economies since 2008, only 408 had been removed by mid-October 2016. The overall stock of measures has increased by 5.6 percent compared to the previous report--with the total number of restrictive measures in effect now at 1,263. The rollback of trade-restrictive measures recorded since 2008 remains too slow and continues to hover just below 25 percent.¹³

Figure 2.5 G20 Trade-restrictive Measures (Average per Month)



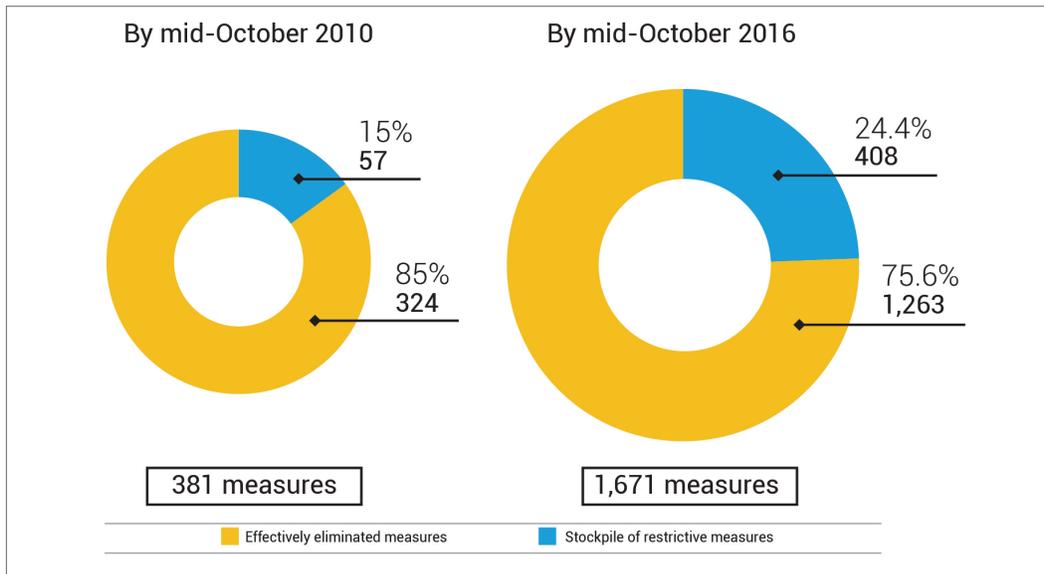
Source: World Trade Organization, Report on G20 Trade Measures, November 2016

¹¹ WTO. November 2016. Report on G20 Trade Measures

¹² WTO. November 2016. Report on G20 Trade Measures

¹³ WTO. November 2016. Report on G20 Trade Measures

Figure 2.6 Figure Stockpile of Trade-restrictive Measures



Source: WTO, Report on G20 Trade Measures, November 2016

As a consequence of the global financial crisis, there has been a growing backlash against the consequences of globalization. Over the medium term, politicians and interest groups are expected to capitalize on the backlash to push for populist and protectionist agenda. This situation raises the risk of ushering in or reinforcing authoritarian governments.

This backlash seems to be manifested in the results of the United Kingdom (UK) referendum on Brexit and the US Presidential elections. The UK seems headed for a “hard Brexit”, where it would likely leave the EU Single Market, though possibly in phases. While the UK government is keen on concluding the process within the two years provided under Article 50 of the EU Treaty, negotiations on the terms may take much longer, leading to further uncertainties. A full-blown trade war between the US and China could plunge the global economy into a recession.

Upcoming changes in political leadership in France, Germany, Netherlands, and Italy could further fuel this trend, possibly calling into question the future of the European project. Political developments in China and Russia need to be keenly monitored as well.

Rise of Fundamentalism

The threat from terrorism has been growing, as illustrated by a number of recent attacks carried out in Europe, Asia, Africa, among others. While the Islamic State has suffered significant setbacks, it is likely to take several more years before the threat, including retaliation from the group and its other sympathizers, is fully neutralized. Generally, the Middle East will probably continue to be a region of instability.¹⁴

¹⁴ Hill, Hal. 2016. Setting the Scene: the Global and Regional Context. Unpublished manuscript

Maritime Disputes

In 2016, the Permanent Court of Arbitration ruled in favor of the Philippines on the case of the West Philippine Sea. Despite this development, conflicting interests and

claims in the West Philippine Sea are likely to remain unresolved given the challenges in enforcing the Court's ruling.

Social and Demographic Trends

Social and demographic factors will increasingly become important determinants of economic progress in the country and the world.

Ageing Populations

Better nutrition, sanitation, healthcare, education, and economic well-being have led to changes in reproductive and life expectancy trends. People are living longer and healthier and having fewer children. The global population will continue to age quickly, especially in several major rich countries and regions, notably, Japan and most of the EU¹⁵.

Between 2015 and 2030, the number of senior citizens in the world is projected to grow by 56 percent, from 901 million (1:8 people) to more than 1.4 billion (1:6 people). The ageing process advanced the most in Europe and Northern America, where more than 1:5 people were aged 60 or over in 2015. However, ageing is expected to grow quickly in other regions as well. By 2030, older persons are expected to account for more than 25 percent of

the populations in Europe and Northern America, 20 percent in Oceania, 17 percent in Asia and Latin America, and 6 percent in Africa. In fact, the number of older persons is expected to grow fastest in Latin America and the Caribbean (71%), followed by Asia (66%), Africa (64%), Oceania (47%), Northern America (41%), and Europe (23%). By 2050, life expectancy at birth is projected to surpass 80 years in Europe, Latin America and the Caribbean, Northern America, and Oceania; it will approach 80 years in Asia and 70 years in Africa¹⁶.

China is also ageing quickly. In spite of the recent relaxation of the one-child policy, the process will accelerate as the second and third-generation effects of the policy are felt¹⁷.

Recent reports indicate that even Thailand and Vietnam are facing the challenge of population ageing. Thailand's population is predicted to begin declining before 2020, as its fertility rate has been below replacement level for 20 years and continues to fall. Data from Vietnam's 2009 census shows that the number of older persons—older women, in particular—has risen more rapidly than any other age group¹⁸.

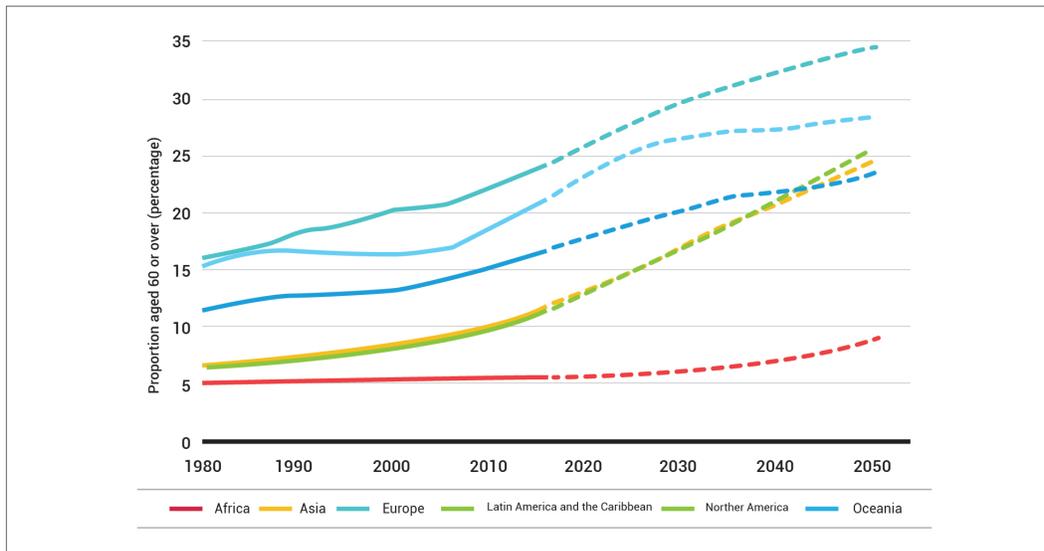
¹⁵ APEC. 2009. APEC Economic Policy Report

¹⁶ United Nations Department of Economic and Social Affairs. World Population Ageing 2015

¹⁷ Hill, Hal. 2016. Setting the Scene: the Global and Regional Context. Unpublished manuscript

¹⁸ UNFPA. <http://www.unfpa.org/news/thailand-and-viet-nam-face-new-development-challenge-ageing-populations>

Figure 2.7 Percentage Aged 60 Years or Over by Region, 1980-2050



Source: United Nations Department of Economic and Social Affairs, *World Population Ageing 2015*.

The ageing workforce in advanced economies will continue to support the demand for migrant workers. In contrast, the workforce in the Philippines will remain relatively young for some time. However, the backlash against globalization is also bringing a rising sentiment against immigration in some countries. This could lead to more stringent migration policies and procedures, as well as to less hospitable working environments for migrant workers.

Inequality May Persist in Some Nations

Related to these demographic trends, inequality is likely to continue to be a major global challenge.. It is probable that the trends of the past decade or more will continue¹⁹. That is, inequality across nations will likely decline. This is driven mainly

by narrowing inter-country differences, as many low- and middle-income economies grow faster than the rich ones. Much of this narrowing gap is driven by the dynamic Asian economies. Trends in inequality within countries are difficult to forecast, but high or rising inequality will likely continue to be a major challenge in most countries²⁰.

Technological Trends²¹

It is impossible to predict the speed and direction of future technological change. Many of tomorrow's jobs do not yet exist. Historically, over 95 percent of research and development, and hence, innovation, occurred in member nations of the Organisation for Economic Cooperation and Development (OECD). However, much of future innovation will originate in today's middle-income economies, especially those with a strong research and development base such as China, India, Russia, and Brazil.²²

¹⁹ Bourguignon, F. 2015. *The Globalization of Inequality*. New Jersey: Princeton University Press

²⁰ Hill, Hal. 2016. *Setting the Scene: the Global and Regional Context*. Unpublished manuscript

²¹ Information in this section is based on OECD Science, Technology and Innovation Outlook 2016

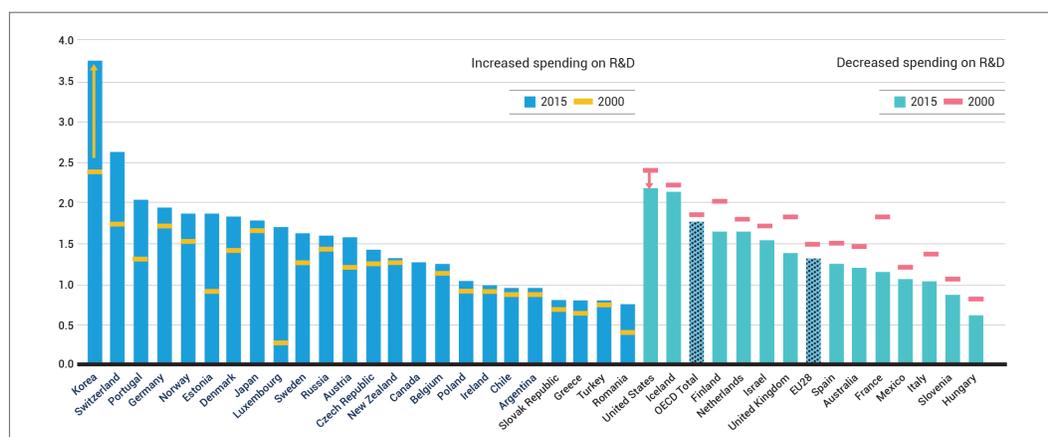
²² Hill, Hal. 2016. *Setting the Scene: the Global and Regional Context*. Unpublished manuscript

Shift Towards Universities and Private Funding

Most OECD economies continued to maintain or increase public spending on research and development between 2000 and 2015. On average, however, public spending on R&D in OECD countries declined between 2000 and 2015.²³

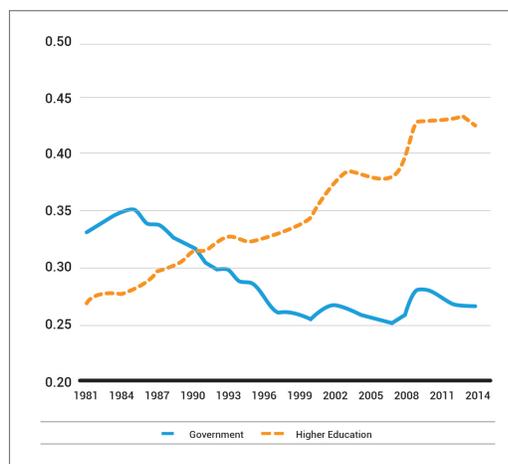
Public research in OECD has also been shifting toward universities. These universities, in turn, are increasingly relying on private funding, including from charities, philanthropists, and private foundations.²⁴

Figure 2.8 Government Budget Appropriations and Outlays for Research and Development as a Share of Total Government Expenditures, 2000 and 2015



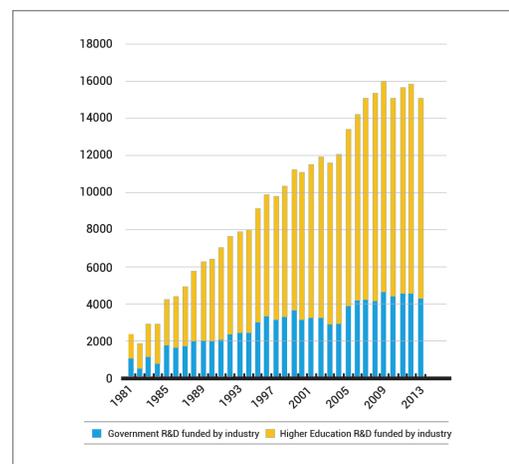
Source: OECD Science, Technology and Innovation Outlook 2016.

Figure 2.9 Public Research and Development Expenditure, Total OECD, as a Share of GDP, 1981-2014



Source: OECD Science, Technology and Innovation Outlook 2016.

Figure 2.10 Public Research Funding by Industry, OECD, USD Million Purchasing Power Parity at Constant Prices, 1981-2013



²³ OECD. Science, Technology and Innovation Outlook 2016

²⁴ OECD. Science, Technology and Innovation Outlook 2016

Upcoming Disruptive Technologies

Among the most promising and potentially disruptive emerging technologies are the Internet of Things, big data analytics, artificial intelligence, neurotechnologies, nano- or microsatellites, nanomaterials, additive manufacturing, advanced energy storage technologies, synthetic biology, and blockchain.

The *Internet of Things* envisions a hyper-connected, digitally-responsive society. The largest impact is expected in healthcare, manufacturing, network industries, and local government. While it has great potential to support human, societal, and environmental development, several safeguards need to be put in place to ensure data protection and security.²⁵

Big data analytics is a set of techniques and tools used to process and interpret large volumes of data that are generated by the increasing digitization of content, the greater monitoring of human activities, and the spread of the Internet of Things. It will play a key role in the innovation and competitiveness of firms. Its application to public sector data can improve government policies and public services. Monitoring and predictive analytics can lead to earlier detection of illnesses. However, it is important to balance the need for openness with the threats to privacy, security, equity, and integrity.²⁶

Artificial intelligence is the ability of machines and systems to acquire and apply knowledge and carry out intelligent behavior. This technology makes robots that can adjust to changing working

conditions, reduce work accidents, and enhance decision-making in hazardous and dangerous situations, thereby leading to substantial savings and increased productivity. Demand for knowledge workers who are able to develop artificial intelligence will increase. Creative or tacit knowledge, which is less codifiable, and skills requiring social interaction or physical dexterity, which are less easy to automate, are likely to remain unaffected.²⁷ Advances in artificial intelligence are expected to have beneficial impact on health, environment, and other areas. It may take some time though before societies and governments accept this technology and to put in place the appropriate regulations for its use, especially in sensitive areas such as transport and medicine.²⁸ On the other hand, the use of artificial intelligence in less sensitive areas such as voice computing may find wider acceptance, posing a challenge to the call center industry for instance.

Neurotechnology is an artificial means of interacting with the brain and nervous system in order to investigate, access, and manipulate the structure and function of neural systems. It can greatly enhance diagnosis and therapy. However, some neurotechnologies raise ethical, legal, social, and cultural questions.²⁹

Nano/microsatellites, which weigh between 1 kilogram (kg) and 50 kg, offer vast opportunities for making construction faster and more flexible. They can also be used in navigation, communications or remote sensing for civilian and defense purposes. Increasing use of such satellites requires the right regulatory framework and business environments to ensure proper use.³⁰

²⁵ OECD. Science, Technology and Innovation Outlook 2016

²⁶ OECD. Science, Technology and Innovation Outlook 2016

²⁷ OECD. Science, Technology and Innovation Outlook 2016

²⁸ The Economist. The World in 2017

²⁹ OECD. 2016. Science, Technology and Innovation Outlook 2016

³⁰ OECD. Science, Technology and Innovation Outlook 2016

Nanomaterials are materials whose external dimension is in the nanoscale (10^{-9} meter). They have unique optical, magnetic, and electrical properties that can be used in healthcare, energy, and other technologies. However, technical constraints and uncertainties over their toxicity to humans and the environment must be considered.³¹

Additive manufacturing—also known as three-dimensional (3D) printing—encompasses different techniques that build products by adding materials in layers, often using computer-aided design software. 3D printing technologies may bring about new products in health, medicine, biotechnology, and metal processing among others. This could lead to changes in work and production patterns. As 3D printing becomes more accessible, legal and regulatory issues regarding data protection, product liability, and intellectual property will become increasingly important.³²

Energy storage technology is a system that absorbs energy and stores it for a period of

time before releasing it to supply energy or power services. Advances in this technology are important to optimize energy systems and allow the integration of renewable energy systems. As the materials, technologies, and deployment applications for storing energy are created, ensuring safety and minimizing the risk of failure and losses become crucial.³³

Synthetic biology is a new field of research in biotechnology that uses engineering principles to manipulate the genetic make-up of organisms. It allows new biological parts to be constructed and natural biological systems to be re-designed. It is expected to have a wide range of applications in health, agriculture, industry, and energy. It also raises major legal and ethical issues.³⁴

The **Blockchain** is a database that allows the transfer of value within computer networks. It technology is expected to be used in several markets to ensure trustworthy transactions without the need for a third party. However, it is constrained by unresolved technical issues and risk of abuse for illegal purposes.³⁵

³¹ OECD. Science, Technology and Innovation Outlook 2016

³² OECD. Science, Technology and Innovation Outlook 2016

³³ OECD. Science, Technology and Innovation Outlook 2016

³⁴ OECD. Science, Technology and Innovation Outlook 2016

³⁵ OECD. Science, Technology and Innovation Outlook 2016

Environmental Trends

Climate Change

The science of climate change may continue to be controversial and highly uncertain, though there is now wider consensus among professionals about the gradually rising average temperatures and climate volatility.³⁶

The Intergovernmental Panel on Climate Change (IPCC) says that the average global temperature increased by 0.85 degree Celsius (°C) between 1880 and 2012. As a result, major crops like maize and wheat have suffered significant yield reductions at the global level of 40 megatonnes (MT) per year between 1981 and 2002. Also, the global average sea level increased by 19

centimeters from 1901 to 2010, as oceans expanded due to warming and melting of ice. The Arctic has been losing 1.07 million square kilometers of ice every decade since 1979. The increase in global temperature by the end of this century will likely exceed 1.5°C compared to the levels from 1850 to 1900, considering the continuous emissions of greenhouse gases. In fact, 2016 was declared the hottest year on record, with the global average temperature about 1.1°C higher than the pre-industrial period.³⁷

This condition led to widespread coral reef bleaching. If current trends continue, nearly all of the world's coral reefs will suffer severe bleaching every year.³⁸

Figure 2.11 Global Average Surface Temperature Change (Relative to 1986-2005)

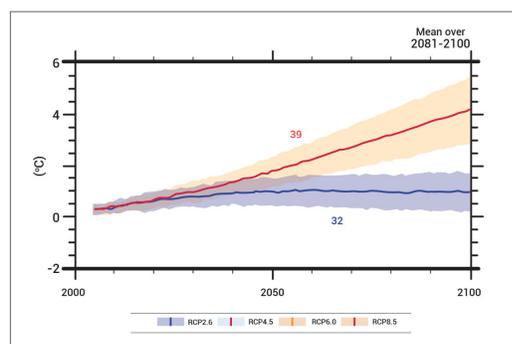
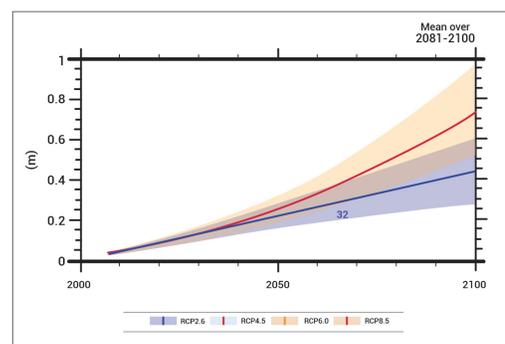


Figure 2.12 Global Mean Sea Level Rise (Relative to 1986-2005)



Source: IPCC, 2014: *Climate Change 2014 - Synthesis Report*.

³⁶ Hill, Hall. 2016. Setting the Scene: the Global and Regional Context. Unpublished manuscript

³⁷ World Meteorological Organization. <https://public.wmo.int/en/media/press-release/wmo-confirms-2016-hottest-year-record-about-11%2B0c-above-pre-industrial-era>

³⁸ UN. <http://www.un.org/sustainabledevelopment/blog/2017/01/climate-change-will-lead-to-annual-coral-bleaching-study-predicts/>

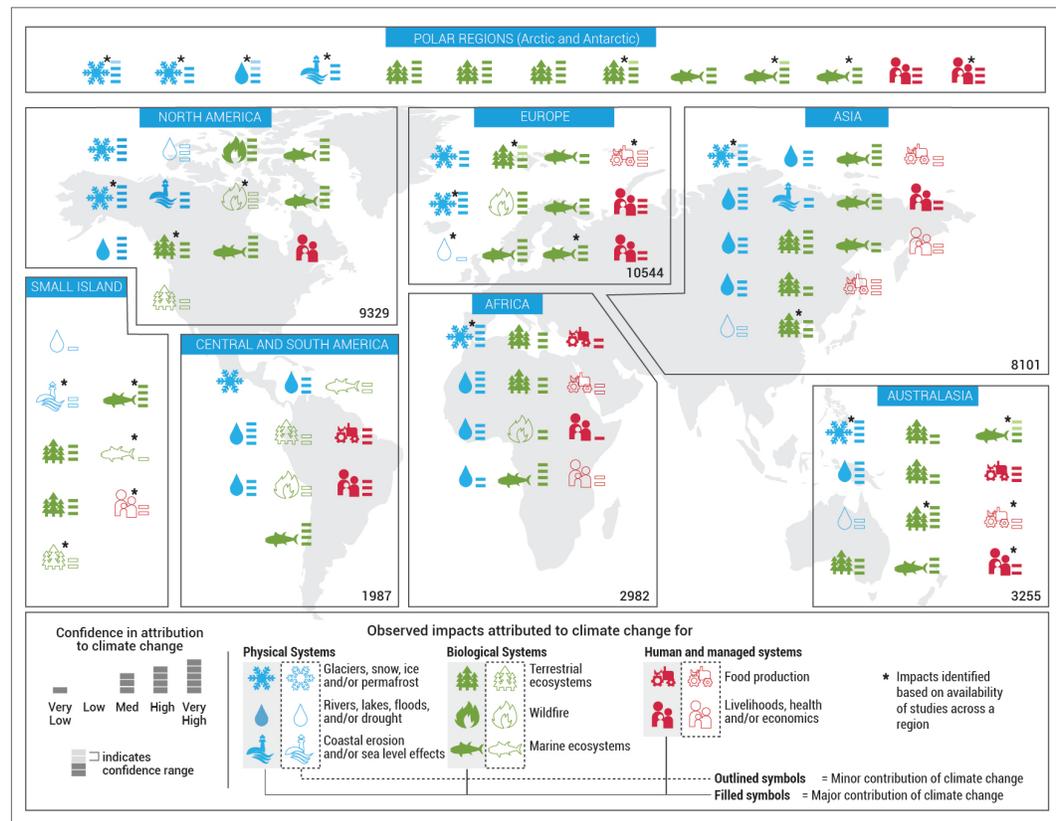
The world's oceans will also continue to warm and the ice melt. Average sea level rise is predicted at 24-30 cm by 2065 and 40-63 cm by 2100. Most aspects of climate change will persist for many centuries even if emissions stop.³⁹

To address climate change, countries adopted the Paris Agreement at the Conference of Parties 21 on December 12, 2015. All signatories agreed to limit global temperature rise to below 2°C and to strive for 1.5°C.⁴⁰ The Paris Agreement represents an important step in international efforts to combat climate change. However, potential changes in the direction of US policy could

undermine the implementation of the agreement. Nevertheless, where the local impact of climate change and environmental degradation has become more evident, pressure from domestic stakeholders may encourage their governments to pursue the path of sustainable development.

The next six years will be filled with great challenges for policymakers in emerging economies, such as the Philippines, which have little control over global and regional trends. The following chapters illustrate how the country intends to navigate through these difficult times.

Figure 2.13 Widespread Impacts Attributed to Climate Change Based on the Available Scientific Literature Since 4th Assessment Report of the IPCC



Source: IPCC, 2014: *Climate Change 2014 - Synthesis Report*.

³⁹ UN. <http://www.un.org/sustainabledevelopment/climate-change-2/>

⁴⁰ UN. <http://www.un.org/sustainabledevelopment/parisagreement22april/>