Chapter 1

Inequality of Outcomes in Asia and the Pacific: Trends, Drivers and Costs

for Healthy & Beautiful Life

High and persistent inequalities of outcome are a source of concern because they undermine the implementation of the 2030 Agenda for Sustainable Development and the associated Sustainable Development Goals (SDGs).[1] Among several adverse implications, they can lead to a deceleration of economic growth, hamper efforts aimed at eliminating extreme poverty and hunger, and weaken bonds of solidarity at the community level. Inequalities of outcome also correlate with political capture, especially by vested interest groups. A disproportionate political influence of the rich over policymaking increases rent-seeking activities at the expense of the broader society, hence undermining the global aspiration of "leaving no one behind". Addressing deepening and persisting inequalities is also important to foster peace and prevent within-country conflicts.[2]

This chapter builds on previous literature and evidence on inequality of outcome, including work done by the ESCAP, and aims to further examine recent trends in inequality of outcome in the region. The chapter presents new research on the drivers and costs of income inequality in the region.[3] Owing to data constraints, the chapter primarily focuses on income inequality at the regional and country levels.

1.1 A CONCEPTUAL FRAMEWORK FOR UNDERSTANDING INEQUALITY OF OUTCOME

At a basic level, income inequality refers to the variation in how income generated in the production of goods and services is distributed across a population. The extent of this variation depends on a three-way relationship between the demand for goods and services, how they are produced and how people are remunerated for their work. Owners of assets that support productive activities, such as land, financial assets or shares of corporations, also receive income in the form of rent, interest or dividends. Each of the three elements of an economy are themselves dependent on a host of factors such as access to education, markets and the extent of regulations and taxes – as illustrated in Figure 1.1.

The figure shows that the way production is organized in a country depends on its level of technology, its degree of engagement in international trade and investment and its policies on regulations and taxation. These factors determine the share of income distributed in the form of wages and salaries *vis-a-vis* profits and rents. In addition, income distribution depends on access to (and the quality of) education, tax policies, social protection, non-discrimination laws and philanthropy. As discussed in the next section of this chapter, direct taxes and social protection can play a powerful role in ameliorating market income inequality.

Figure 1.1 Conceptual framework for income inequality
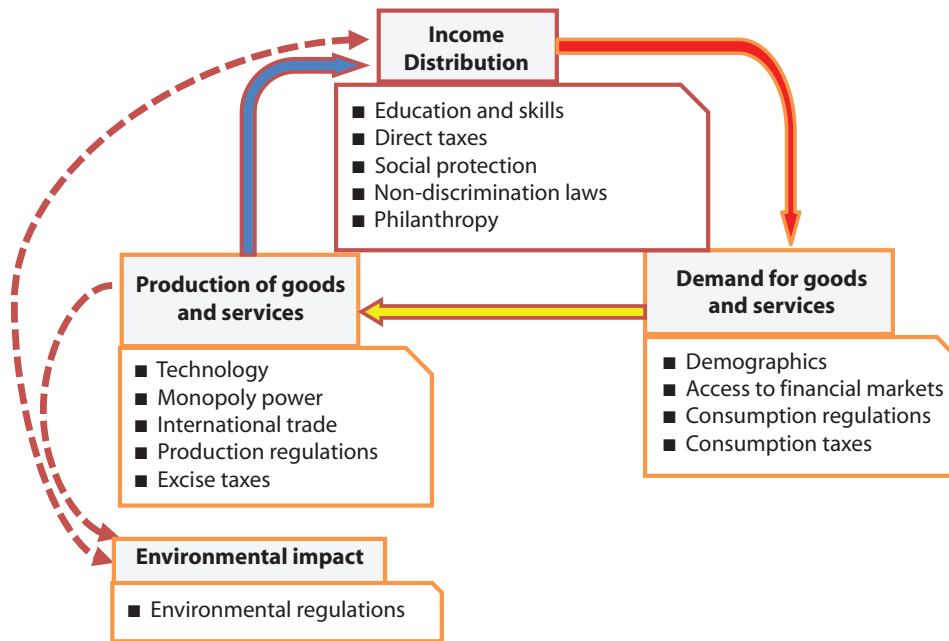
Source: ESCAP.

The production of goods and services and the payments it generates is not the sole driver of income distribution. Production is also driven by the demand for a country's goods and services, which are in turn affected by demographic factors, access to financial services and policies such as consumption taxes and other fiscal measures. The demand for goods and services in an economy is also influenced by the distribution of income. The figure also shows the relationship between economic activity, the distribution of income and environmental impacts. Policymakers increasingly recognize the importance of taking a system-wide approach that considers these interlinked and complex elements for an appropriate diagnosis of the causes of economic inequality.

The booming real estate prices experienced by many cities across the Asia-Pacific region in recent years provide a powerful example of how changes in the interaction between demand and the production of goods and services can result in changes in income distribution. Spiralling prices tend to reflect rising demand for housing, which has partly been caused by factors such as the expansion of the middle class and low levels of financial-market development.[4] While rising purchasing power makes housing increasingly affordable for the middle classes, a lack of opportunities for financial investment is also leading to additional demand for housing units for investment purposes by wealthy individuals. As demand for housing increases, the production side of the economy responds through an increase in the business activities of developers, constructors, producers of construction materials,

realtors and banks. Rapid increases in real-estate prices feed into rising income for companies in these sectors, along with landowners and real-estate speculators, leading in turn to a more unequal distribution of income.[5]

Technological progress is an important driver of changes in income distribution.[6] While it facilitates the expansion of production by lowering production costs and increasing productivity, it also leads to a concentration of income in the hands of the most innovative businesses. Technological progress tends to favour capital over labour and skilled labour over unskilled labour, which can exacerbate differences in rates of economic growth among countries and within them.[7] Advances in information and communication technology, along with the emergence of social media and information and communication technologies (ICT), for example, have spawned a new cadre of billionaires across developed countries and emerging economies. The enormous wealth of technology giants such as Apple, Google, Facebook, Amazon or Ali Baba is related to both the major technological breakthroughs and innovations they have stirred and to the monopoly power they enjoy as "first movers" in a vibrant new technological landscape.[8]

A major factor affecting the distribution of income in developing countries, including in the least developed countries (LDCs), is the unequal distribution of human capital – the value of individuals' skills, knowledge, abilities and social attributes. Through the process of development, the production of goods and services

tends to become more sophisticated, which requires an increasingly well-educated and skilled workforce. Achieving this depends on sustained public investment, and arguably the participation of the private sector in education systems including technical and vocational education and training (TVET).[9] Without a substantial increase in public investment in education, as well as in other social policies such as health care and social protection, a share of the population is likely to remain excluded from the benefits of technology-led economic growth, perpetuating a skewed distribution of income. These issues are discussed at length in chapter 2 and chapter 4.

1.2 TRENDS IN ECONOMIC INEQUALITY IN THE ASIA-PACIFIC REGION

Economic inequality can be measured in several ways. One approach is to compare the income of a swathe of affluent people, say the top 10 per cent of the income distribution in a country, with the national average. Other approaches focus on the gap between the poorest in a society and the median household. The best-known way of measuring income inequality is the Gini coefficient, named after the Italian statistician Corrado Gini. It aggregates the gaps between people's incomes into a single measure. If everyone in a group has the same income, the Gini coefficient is 0; if all income goes to one person, it is 1.[10] Most of the analysis in this chapter is based on the Gini coefficient, using data gathered from countries across the Asia-Pacific region since the early 1990s. Most of the analysis is carried out by using gross (or market) income, which does not reflect government policies to redistribute income, for instance through direct taxes, social security contributions and cash transfers. Annex 1.1 provides a brief description of the data set on the Gini coefficient used in the analysis.

The data present a mixed picture – several economies in the Asia-Pacific region experienced a considerable rise in income inequality between the early 1990s and the 2010s, while many other nations saw declines during this period. On average, according to data from 46 countries, the region's inequality increased by close to 5 percentage points during this period; from 33.5 in 1990-1994 to 38.4 in 2010-2014 (Figure 1.2).[11]

Figure 1.2 also shows the population-weighted income Gini coefficient of Europe, Western Asia, Africa and Latin America and the Caribbean. Despite a significant increase in income inequality in the Asia-Pacific region, its population-weighed Gini coefficient is still about 7 percentage points lower than that of Europe and more than 10 percentage points lower than that of Latin America and the Caribbean.[12] Nevertheless, the rising trend in Asia-Pacific is contrary to most other regions.

Figure 1.2 Income inequality by region, changes between early 1990s and early 2010s
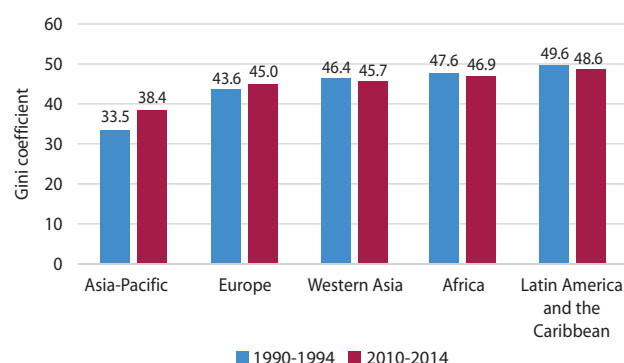
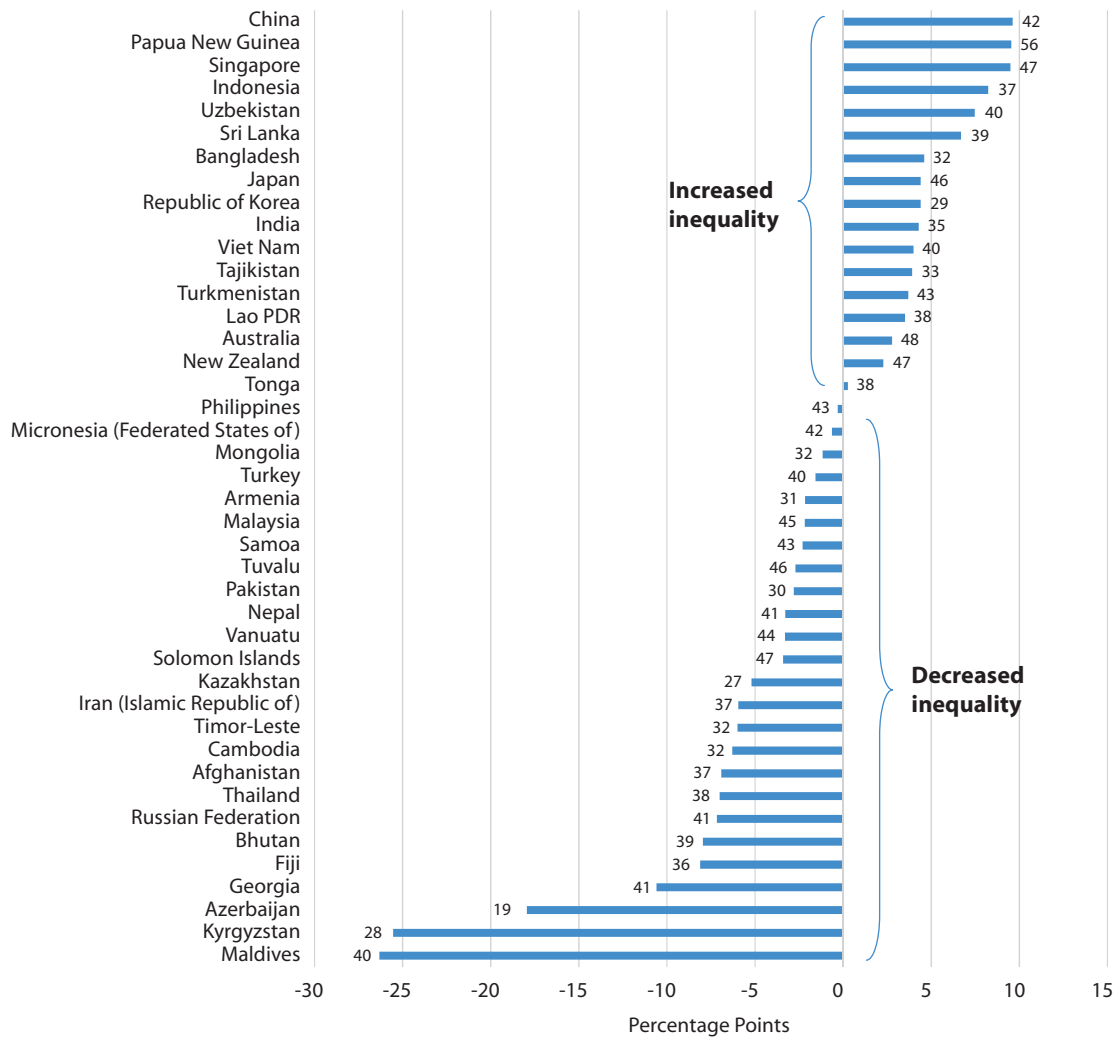*Source:* ESCAP. See Annex 1.1 for data sources.
Notes: The regional classification is based on the United Nations regional commissions. The Gini coefficient of each country was calculated as the simple average of the available Gini coefficients within each 5-year period (1990-1994 and 2010-2014). Each region's Gini coefficient is calculated as the weighted average of the Gini coefficients of the countries in the region using population weights.

This overall rise in income inequality is mostly due to sharp increases in the region's most dynamic and populous countries. Between 1990-1994 and 2010-2014 the market income Gini coefficient soared by 9.6 percentage points in China, 8.2 percentage points in Indonesia, 4.6 percentage points in Bangladesh and 4.3 percentage points in India. These four countries are among the five most populous countries in the region, representing over 70 per cent of the population in 2015.[13] The overall picture, however, is mixed. In 60 per cent of the Asian and Pacific countries, income inequality declined (Figure 1.3), often from very high levels. The sharpest fall in inequality occurred in the Maldives, followed by Kyrgyzstan, Azerbaijan and Georgia, reflecting the recovery of those countries from the economic crisis that followed the breakup of the Soviet Union.[14]

In terms of changes in income inequality by subregions, North and Central Asia experienced a sharp decline with the Gini coefficient dropping on average 11.4 percentage points for six of the nine countries for which data are available (Figure 1.4). As a result, during 2010-14, this subregion had an average Gini coefficient of 38.3, similar to the region's average. In South-East Asia, the picture is mixed, with Indonesia and Singapore experiencing increases in income inequality and others including Malaysia and Thailand seeing declines. On average, however, the population-weighted Gini coefficient rose from 32.6 to 39.1, a similar increase in magnitude to that seen across the entire region.

South and South-West Asia also saw mixed developments, with Bangladesh, India and Sri Lanka experiencing increases in income inequality, while the Islamic Republic of Iran, Pakistan and Turkey experienced decreases, with an average increase from 32.1 to 34.8.

Figure 1.3 Changes in income inequality by country, 1990 and 2014

Source: ESCAP. See Annex 1.1.
Note: Labels next to each bar show each country's average market income Gini coefficient for 2010-2014. The Gini coefficient of each country was calculated as the simple average of the available Gini coefficients within each 5-year period (1990-1994 and 2010-2014).

Figure 1.4 Changes in income inequality by subregions, 1990 and 2014
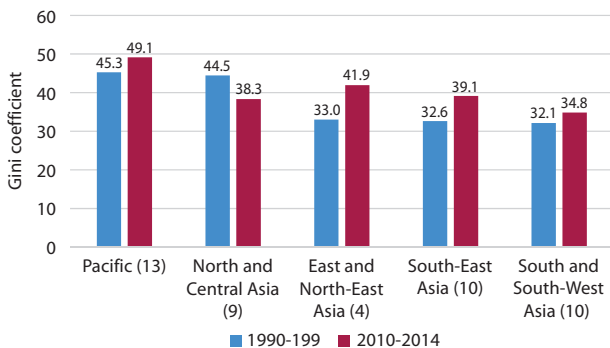

Source: ESCAP. See Annex 1.1.
Notes: The subregional classification is based on the United Nations ESCAP's classification of Asia and the Pacific. The Gini coefficient of each country for each of the subregions was calculated as the simple average of the available Gini coefficients within each 5-year period (1990-94 and 2010-14). Each subregion's Gini coefficient is calculated as a weighted average of the Gini coefficients of the countries in the subregion using population weights. The number of countries with available data on the Gini coefficient in each subregion is noted in parentheses.

In East and North-East Asia inequality rose in China, Japan and the Republic of Korea, but decreased in Mongolia, with the subregional average increasing from 33 to 41.9. In the Pacific, 6 of the 13 countries for which data are available experienced an average drop in the Gini coefficient of 3.4 percentage points; however, income inequality increased in the subregion's most populous countries, Australia, New Zealand and Papua New Guinea, and the average Gini coefficient for the subregion edged up from 45.3 to 49.1.

In interpreting these trends, it is important to keep in mind that the measure of income utilized excludes the effect of taxes and transfers, which can contribute significantly to ameliorating income inequalities. OECD data shows that the average Gini coefficient after taxes and transfers is considerably smaller than the gross

Figure 1.5 Inequality, gross versus disposable income, in selected countries, 2014 or latest available years
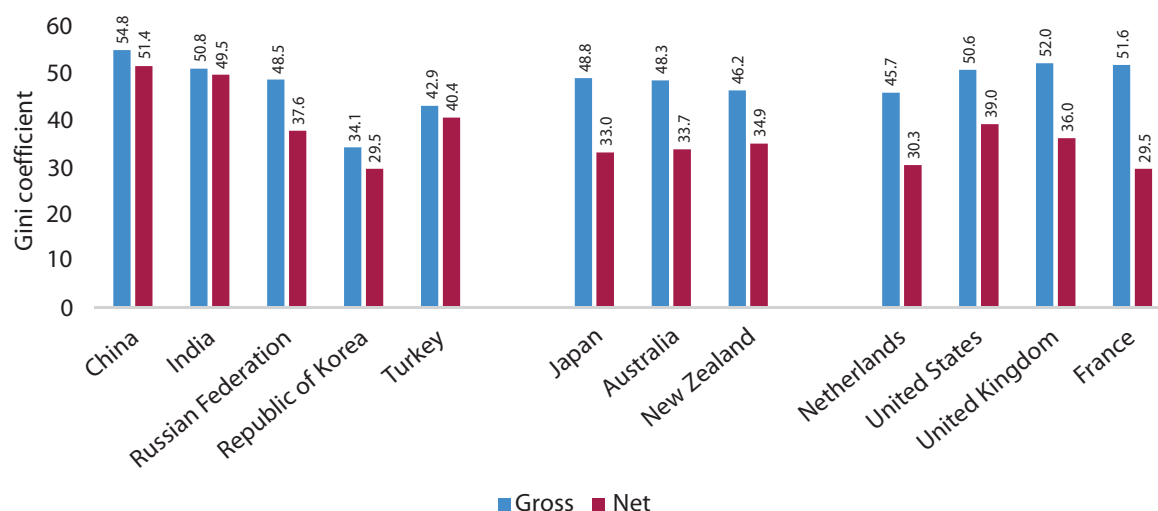
Source: ESCAP, based on OECD Income Distribution Database, available from http://www.oecd.org/social/income-distribution-database.htm (accessed 9 March 2018).

income Gini coefficient in developed countries. As shown in Figure 1.5, the Gini coefficient of net (or after-tax) income for seven developed countries, which are members of ESCAP, was 33.8 compared with 49 when income is measured on a gross or market basis.

Similarly, the average Gini coefficients for five countries in the region included in the OECD database – China, India, Republic of Korea, Russian Federation and Turkey – were 41.7 for net income, compared with 46.2 for gross income. These findings highlight the important role fiscal policies can play in redistributing incomes through taxes and transfers and their potential to play a larger role in reducing inequality of outcomes in the region.[15]

1.2.1 Trends in consumption inequality

Inequality of outcome can be gauged using other economic measures besides income. One option is to consider inequality in the consumption of goods and services. Compared with income, this measure excludes savings, which are higher for richer households. As such, inequality in consumption is expected to be lower than inequality in income. In fact, using data for 20 countries, representing 90 per cent of the Asia-Pacific population, we find that the average population-weighted Gini coefficient increased by just 1.7 percentage points: from 33.2 in the mid-1990s to 34.9 in the mid-2010s. As noted above, this increase also reflects the weight of countries such as China, India and Indonesia.

A related measure of interest is the ratio of the average consumption of the poorest 40 per cent of the population over the average consumption for all the population. If this indicator increases over time, it will

contribute to meeting Target 10.1 of the Sustainable Development Goals: "By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average." Changes in this indicator between the early 1990s and the early 2000s are shown in Figure 1.6, confirming the finding that inequality increased most sharply in the region's most populous countries – China, India and Indonesia. Overall, the ratio of the average consumption of the bottom 40 per cent of the population over the average consumption for the whole population declined from 50.3 per cent to 48 per cent. Nevertheless, inequality decreased significantly in some North and Central Asian countries, consistently with the findings shown in Figures 1.3 and 1.4.

A feature of interest in Figure 1.6 is that data for China, India and Indonesia are broken down for the urban and rural populations. In China and India, inequality increased more in urban areas than in rural areas, but the opposite is true for Indonesia.

It is also possible to use the Lorenz curve to illustrate the distribution of income or consumption in a country or region. Figure 1.7 shows two Lorenz curves for per capita household consumption in Asia and the Pacific, one for the early 1990s and another for the early 2010s. The vertical axis shows the cumulative share of consumption, and the horizontal axis shows that cumulative share of population. Both the horizontal and vertical axes are normalized between 0 and 100. Because the curves are constructed using data on household consumption per capita by decile from 20 Asia-Pacific countries, they reflect both within- and between-country inequality.

Figure 1.6 Changes in the ratio of average consumption of the bottom 40 per cent to the average total consumption in the Asia-Pacific region, early 1990s and early 2010s
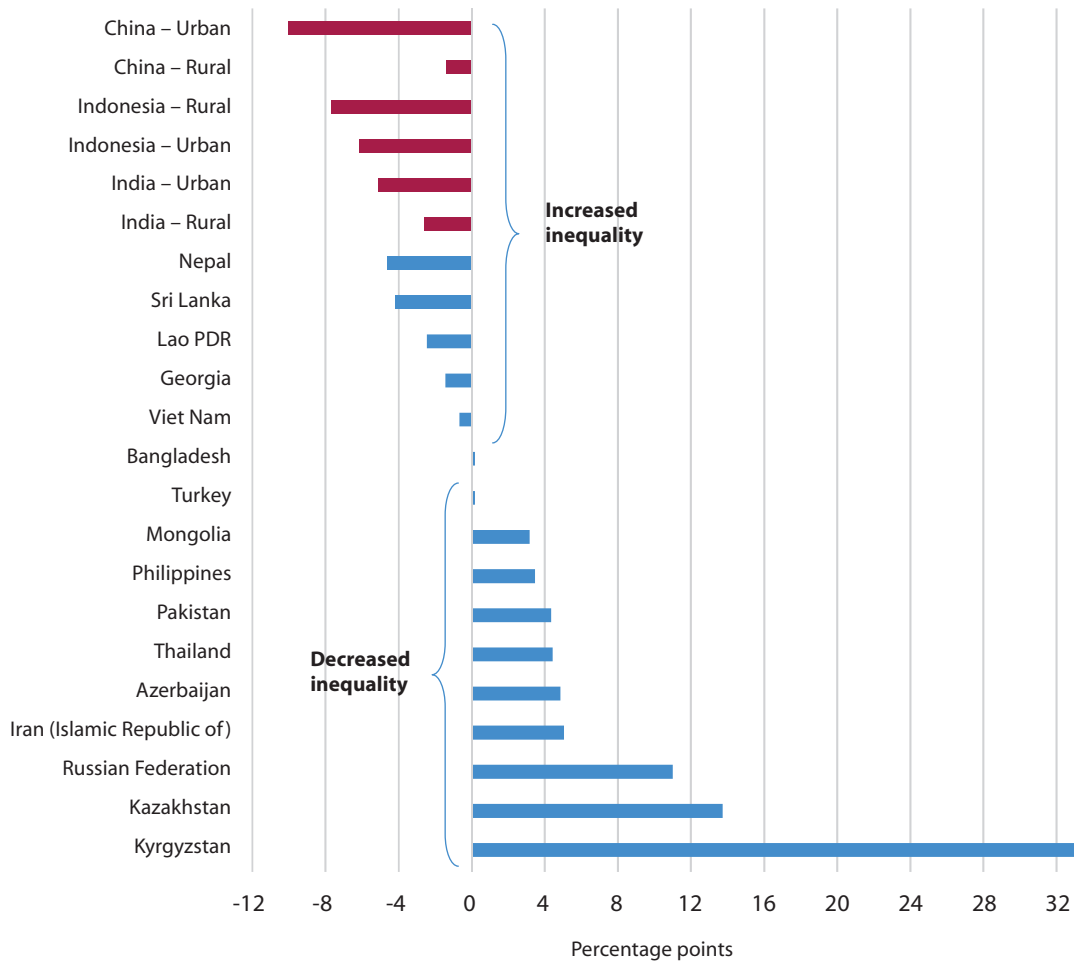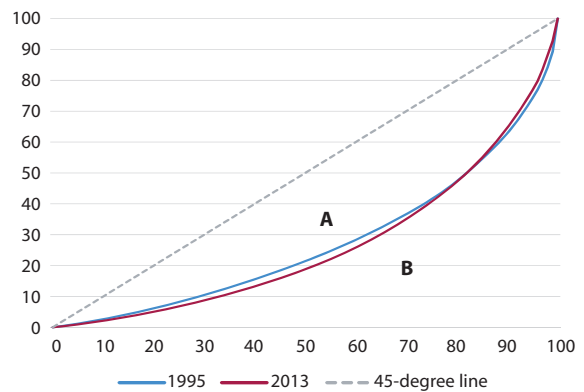

Source: ESCAP based on data from World Bank's PovcalNet database.
Notes: Three countries, China, India and Indonesia, have separate data for rural and urban populations. They are noted in red. Data for the early 1990s and the early 2010s for each country are based on the most recent Gini coefficient available, respectively, for 1990-1996 and 2010-2016.

The Gini coefficient can be estimated from a Lorenz curve as the ratio of the area between the 45-degree line and the blue or orange line in the figure (area A in the figure) and the total area between the 45-degree line and the horizontal axis (areas A + B in the figure).[16] The Gini coefficients calculated from the Lorenz curves in Figure 1.7 are 44.7 for the early 1990s and 46.6 for the early 2010s.

Another advantage of estimating Lorenz curves for different periods is that they provide information on changes in inequality for different segments of the population. For instance, in Figure 1.7, the two curves cross at around the 85th consumption percentile. Below that threshold, the early 2010s curve is below the early 1990s curve. This means that inequality rose for the poorest 85 per cent of the population, but it declined for the richest 15 per cent of the population. This pattern reflects the rapid rise in purchasing power of richer segments of the population in large countries.

Figure 1.7 Lorenz curves for per capita household consumption in the Asia-Pacific region, early 1990s and early 2010s
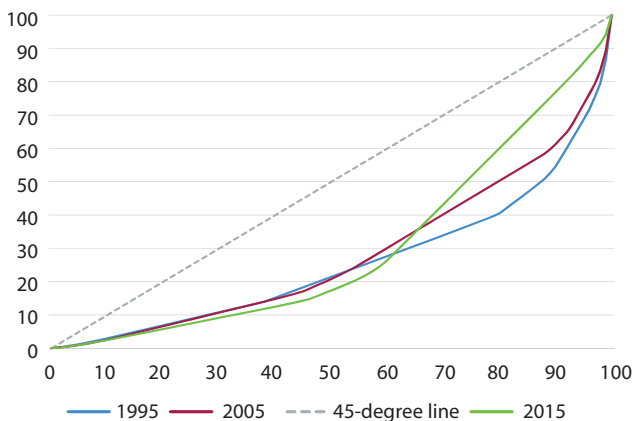

Source: ESCAP based on data from World Bank's PovcalNet database.
Notes: The curve was obtained by combining data on consumption per decile for 20 countries of the region representing 90 percent of the population. Three of them, China, India and Indonesia, have consumption decile data for both rural and urban populations. The data for all countries is adjusted for country differences in purchasing power using PPP exchange rates. Data for the early 1990s and the early 2010s for each country are based on the most recent Gini coefficient available, respectively, for 1990-1996 and 2010-2016. The Gini coefficient is defined as the ratio of the area A over the area (A + B) in the figure.

1.2.2 Trends in between-country income inequality

To further explore changes in inequality among countries, Figure 1.8 shows three Lorenz curves based on gross national income (GNI) per capita in current US dollars for three years: 1995, 2005 and 2015. These Lorenz curves capture exclusively the between-country dimension of inequality in the region because their construction assumes that all persons in a country earn the average income in that country.[17] The Gini coefficients based on these Lorenz curves show a clear decline in overall between-country inequality, from 48.3 in 1995 to 43.5 in 2005 and 39.5 in 2015. However, a closer look at the lower half of the distribution, below the 65th percentile, reveals an increase in inequality between 2005 and 2015, as the Lorenz curve for the latter year is lower. In contrast, the 2015 curve is higher than both the 1995 and the 2005 curves above the 65th percentile. This means that all the reduction of between-country inequality in the region is entirely due to a less concentrated distribution of income in the top third of it. These results are consistent with those presented in Figure 1.6 and are largely explained by the rise of the middle class in China over the last two decades.

Figure 1.8 Lorenz curves for GNI per capita, Asia-Pacific region developing countries, 1995, 2005 and 2015

Source: ESCAP based on data from United Nations' National Accounts Main Aggregates database.
Notes: The figure excludes high-income economies with per capita GNI of US$15,000 or more in 1995: Australia; Brunei Darussalam; French Polynesia; Hong Kong, China; Japan; Macao, China; New Caledonia; New Zealand; and Singapore.

In 1995 China was a low-income country, with a GNI per capita of US$585. Ten years later it had more than tripled to US$1,735 per capita, and by 2015 it had soared to US$8,000. This shift of hundreds of millions of people from low-income to high- and middle-income status explains the reduction of between-country

inequality at the top third of the distribution. However, other low- and low-middle-income countries grew at a much slower pace than China, especially during the past decade. This explains the worsening of the income distribution at the bottom two-thirds of the distribution.

1.2.3 Trends in wealth inequality

Besides income and consumption, inequality can also be measured on the basis of wealth. Income and wealth inequality are related and reinforce each other. Increases in income inequality tend to lead to even larger increases in wealth inequality because wealth is based on the accumulation of past savings and because the rich typically save more than the poor. Concentration of wealth, in turn, can lead to a disproportionate political influence of the rich in policymaking, reducing the likelihood of adopting policies such as taxation or social security to mitigate inequalities. Thus, wealth inequality can contribute to perpetuating income inequality.

Although systematic data on wealth inequality are scarce, some clues can be obtained through publicly available information on the net worth of the world's billionaires. Forbes' billionaires list, for instance, shows that the aggregate net worth of the world's 2,043 billionaires for which information is available amounted to US$7.7 trillion in 2017.[18] This is well above the total gross domestic product of the world's least developed countries, landlocked developing and small island developing states in 2017. These data also show that in several countries in the Asia-Pacific region, the billionaires' combined net worth amounted to more than half of those nations' entire economic output (GDP) in 2017. Figure 1.9 shows that Asia and the Pacific has more billionaires (846 in 2017) than any other region, with an aggregate net worth second only to that of billionaires in the United States. In 2017, their combined net worth of more than US$2.5 trillion was more than seven times higher than the combined economic output of the region's least developed countries.

Research by Thomas Piketty and his collaborators is feeding into new and hopefully more accurate measures of wealth and income inequality, based on combined data from national accounts, survey data, fiscal data and wealth rankings. Figure 1.10 shows the share of total national income accounted for by the top 10 per cent of earners in three large Asia-Pacific countries in 2016.

Of the three Asia-Pacific countries shown, India is the most unequal, with the top 10 per cent of earners receiving 54.2 per cent of the total national income. The figures for Africa and Brazil are similar (54 and 55 per cent respectively). In the Russian Federation, the share of the top 10 per cent of earners is 45.5 per cent, slightly below the United States and Canada (47 per cent). In

Figure 1.9 Comparing billionaires' net worth in Asia-Pacific and other regions, 2017
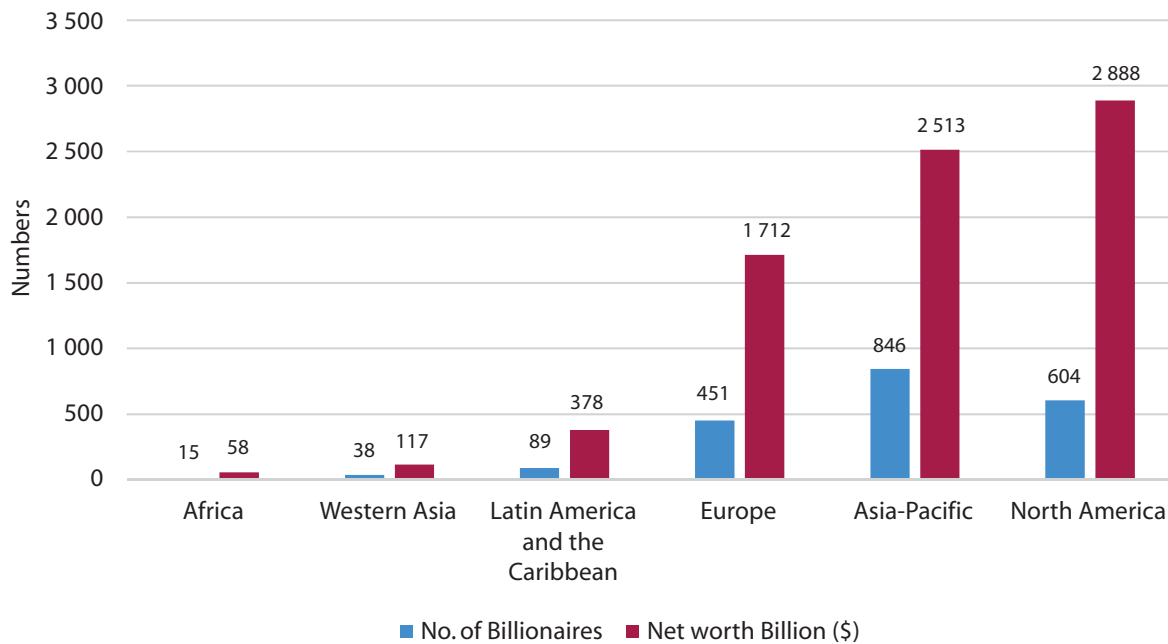
Source: ESCAP, based on Forbes online (accessed on 9 January 2018).

China the top 10 per cent of earners received 41.4 per cent of total income, exceeding the 37 per cent received by the top 10 per cent of earners in Europe.[19]

Figure 1.10 Top 10 per cent share of national income, China, India, the Russian Federation and other major economies, 2016
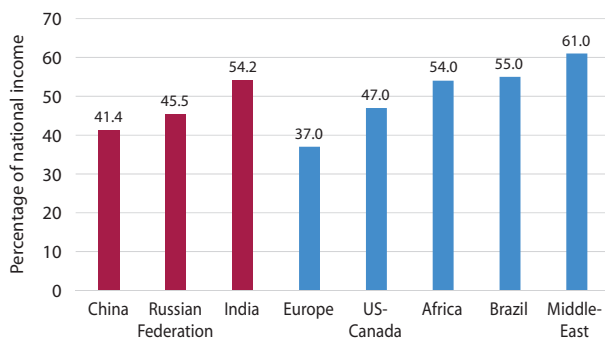
Source: ESCAP, based on World Inequality Report 2018.

1.3 A DISAGGREGATED ANALYSIS OF BETWEEN-COUNTRY INCOME INEQUALITY

In the previous section, we found that between-country inequality has fallen over the past 20 years in the Asia-Pacific region. This section explores the reasons for this reduction by considering the role of structural and long-run changes, both in the structure of production and that of aggregate demand. The methodology disaggregates changes in inequality in GDP per capita

among countries into 1) the share of the components of GDP per capita and 2) changes in inequality within each component (See Annex 1.2 for details). The analysis is conducted year-by-year between 1990 and 2015.

First, the impact of the three productive sectors, agriculture, manufacturing and services, on income inequality among countries, as measured by GDP per capita, is examined. While the share of the manufacturing sector in the GDP grew from 18.5 per cent in 2000 to 23.6 per cent in 2015, the share of the agriculture sector in GDP remained at about 7 per cent, on average, in the period. The service sector therefore accounts for the bulk of the region's GDP.

The findings indicate that the services sector accounted for more than half of the total income inequality throughout the period of analysis (Figure 1.11). The contribution of both services and industry to inequality has declined over time, while the contribution of the agricultural sector to inequality was negligible during the period of analysis. This suggests that the services sector is the dominant driver of between-country inequality in the Asia-Pacific region.

Next, we examine the impact on GDP per capita inequality of its demand-side components: private consumption, government spending, investment and net exports. In recent years, GDP growth has relied more on domestic demand because of weakening global trade and investment flows. Between 2000 and 2015 private consumption was the dominant component of

Figure 1.11 Sector contributions to between-country income inequality in Asia-Pacific countries, 1990-2015
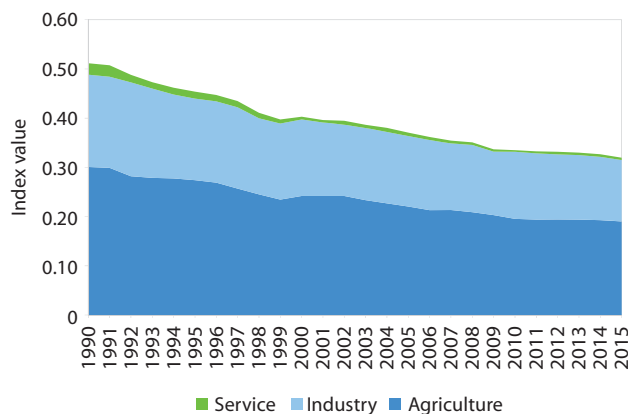
Source: ESCAP.

Figure 1.12 Contribution of expenditure components to between-country income inequality in Asia-Pacific countries, 1990-2015
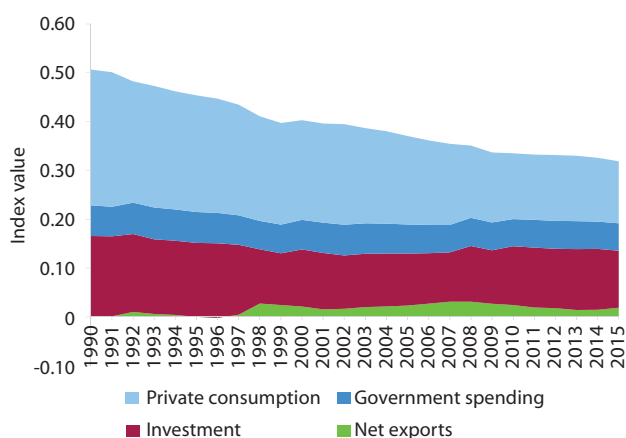
Source: ESCAP.

aggregate demand, representing around half of the total, followed by investment, which contributed more than one-third of GDP (Figure 1.12).

The analysis shows that private consumption is the dominant contributor to GDP per capita inequality from the demand side – on average it accounted for nearly half of income inequality in 1990-2015. The second largest contributor is investment, which accounted for around 37 per cent of income inequality. While the contribution of consumption to inequality has declined markedly, the contribution of investment decreased from 1990 to 2007 and then displayed a rising trend. Government spending is the third largest contributor to inequality – it increased from 12 per cent in 1990 to 18 per cent in 2015. Finally, the contribution of net exports has been quite small, averaging about 4 per cent over the past two decades.

1.4 DRIVERS OF INCOME INEQUALITY

This section examines the role of various drivers of income inequality at the country level, including the way aggregate income per capita is generated: the stock of physical capital, the skillset of the labour force, the sectoral composition of GDP, the use of fiscal instruments, trade and global economic integration, the level of technology and environmental indicators. Furthermore, the analysis considers the impact of governance and institutional frameworks, and tries to account for the possibility of capture of power by vested-interest groups and political elites, which can potentially limit the implementation of policies to reduce income inequality.[20]

The way aggregate income per capita is generated in a country is a traditional determinant of income inequality. According to the Kuznets hypothesis, income inequality rises in the early stages of industrialization as people leave the land, become more productive and earn more in factories. Once industrialization is complete, better-educated citizens demand redistribution and inequality falls, illustrated by the famous inverted U-shaped curve.[21] However, attributing rising income inequality to only economic growth can be misleading because of factors that drive both economic growth and income distribution. For example, while globalization may promote overall economic growth, it may also be a cause of rising inequality in countries. The past 30 years has shown that the Kuznets curve no longer necessarily holds sway – an upper-case *N*-shaped graph, often referred to as the "elephant curve", has become more common. Understanding this change requires taking into account globalization-related measures such as trade, investment and technology.

The accumulation of physical capital or investment in new technology is associated with economic growth but may also contribute to rising income inequality. The reason, as argued by Piketty, is that capital accumulation is usually associated with a faster expansion of capital income compared with labour income, and the former is more unequally distributed across the population than the latter.[22] Furthermore, technological progress can lead to labour-saving production techniques, which can feed into rising income inequality. Technologies such as the internet and mobile phones can provide new opportunities for income-generating activities to a broad segment of the population. These issues are further discussed in chapter 4. However, accessing these opportunities requires access to these technologies as well as a certain level of education, skills and training to take advantage of them, which, as discussed in chapter 2, cannot be taken for granted. In all, it is important that both capital accumulation and technological change be accounted for in the analysis.

In addition, given the role of human capital in facilitating access to opportunities arising from the dissemination of new technologies, an index of human capital needs to be considered.

As mentioned above, fiscal policy instruments, including direct taxes and transfers, play a very important role as a tool for redistributing income. In addition, tax revenue, from both direct and indirect taxes, provides a primary source of financing of public expenditure on various social services including education, health care and vocational training support. These investments enable disadvantaged and marginalized groups in a society to improve their skills and access better-paying jobs. Therefore, it is also necessary to account for fiscal policy in general and tax policy in particular in the analysis of the drivers of income inequality.

Environmental degradation, including pollution and the depletion of the natural resource base, tend to have a disproportionately higher impact on the poor and disadvantaged, thus exacerbating income inequality. For example, medical costs and lost days of work caused by health problems associated with particulate emissions can affect disproportionately workers who work outside or people who lack modern cooking facilities at home, who tend to be poor. In addition, the depletion of a country's natural capital can deprive farmers and fisherfolk from their sources of income, also leading to a worsening of income inequality.[23] Environmental indicators, which are further discussed in chapter 3, are therefore included in the analysis.

Among the various other factors determining income inequality, the rule of law and good governance cannot be overemphasized. Strong, efficient and transparent institutions are essential for maintaining environmental standards, tax collection and ensuring that basic public services are shared and delivered. These factors are thus also considered in the analysis.

The empirical analysis is based on cross-country, time-series regressions, and the dependent variable is the Gini coefficient. Further details on the variables, data sources, and results are included in Annex 1.3. The regression results seem to support the Kuznets hypothesis, with inequality initially growing and subsequently decreasing as per capita income grows - exhibiting the classic inverted U-shaped relationship.

The findings provide strong support for policies that enhance human capital development as a means to reduce income inequality. The analysis also finds that capital accumulation, technological growth and trade openness all have significantly positive coefficients in the regressions, indicating that these factors have contributed to an increase in income inequality, on average, in Asia and the Pacific.

Changes in the structure of production as the economies of the region move from primary to secondary and/or tertiary sectors – captured by the ratio of manufacturing value added to agriculture value added – contribute to decreasing income inequality. This can be explained by the so-called Lewis model of development economics, where labour shifts from agriculture to manufacturing.[24] Initially, this process leads to rising income inequality because the supply of agricultural labour is very large and real wages are close to subsistence. However, as more and more opportunities arise in the manufacturing or service sectors, labour becomes scarce and wages start to rise, with a related fall in inequality.

The analysis suggests fiscal policies may not initially be effective but that they may help reduce income inequality above a certain threshold. This could reflect the substantial investment required to expand access to high quality education and health services.

The empirical evidence further shows that environmental damage, measured as airborne pollution, has a U-shaped relationship with income inequality. At low levels of pollution, its increases are associated with decreases in inequality, but at higher levels, they are associated with increases in the level of inequality. Reducing pollution benefits both health and inequality. In addition, the analysis shows that there is a negative association between the stock of natural capital and income inequality, supporting the hypothesis that the depletion of a country's natural capital has adverse consequences for low-income economic groups such as farming and fishing communities.

Finally, two measures of governance considered in the analysis, i.e. political stability and regulatory quality, have a statistically significant inverted-U relation with the Gini coefficient, meaning that inequality increases at low levels of these measures but decreases at high levels. This result is similar to the finding that tax revenues contribute to reducing inequality only at high levels of tax revenues. They suggest that only at high levels of regulatory quality and political stability further improvements in these governance indicators can contribute to decreasing inequality.

1.5 COSTS OF INCOME INEQUALITY

High and persistent income and wealth inequalities stifle economic growth and progress towards further reduction in poverty. The economic cost of ignoring income inequality is large and significant. A burgeoning number of studies suggests that countries with high income inequality may experience both lower economic growth and a reduced effectiveness of economic growth in lifting people out of poverty.[25] This section reviews the literature on the impact of income inequality on GDP

per capita and poverty reduction and presents new empirical evidence for Asia and the Pacific based on cross-country, time-series regression analyses.

1.5.1 Inequality and growth

Barro (2000) suggests three reasons why inequality can negatively impact economic growth. First, underdeveloped capital markets constrain investment by entrepreneurs with limited income and wealth. In this context, the more unequally distributed income and wealth are, the less opportunities people will have to invest in entrepreneurial activities, limiting economic growth.[26] Second, high inequality may lead to political pressures for the implementation of populist redistributive policies, which may lead to macroeconomic instability and adversely affect investment.[27] Third, high-levels of income inequality may result in an increase in criminal activities and political unrest, reducing incentives for investment.[28] More recently, Rajan (2010) and Acemoglu (2011) suggested that income inequality may also adversely affect economic growth by increasing the likelihood of financial crises in the event of loose monetary and regulatory policies leading to over-indebtedness of low-income, credit-constrained households.

High and persistent income inequality may lead to equally high and persistent inequality of opportunities, as discussed in chapter 2. For instance, De La Croix and Doepke (2004) find that income inequality reduces investment in human capital and increases the fertility rate among the poor. Evidence from various country studies in the Asia-Pacific region indicates that rising income inequality impairs both the quantity and the quality of education of individuals living in poor households and adversely affects intergenerational mobility.[29]The strong relationship between inequality of outcomes and inequality of opportunities can be explained by the power held by economic elites in highly unequal societies, which tend to oppose expanding the provision of public goods.[30] This may further intensify income inequality because the poor tend to benefit more than the rich from public goods provision.[31]

With regards to recent econometric evidence, Dabla-Norris and others (2015) investigate the effect of an increase in the shares of different income quintiles on economic growth. They find that while a 1 percentage point increase in the income share of the top 20 per cent is associated with a lower GDP growth by 0.08 percentage points in the following five years, a 1 percentage point increase in the income share of the bottom 20 percent leads to a 0.38 percentage point rise in economic growth. Cingano (2014) comes to a similar conclusion, arguing that income inequality has a negative and statistically significant effect on subsequent growth prospects.[32]

The adverse impact of inequality on economic growth is confirmed in the regression results reported in Annex 1.4. The estimates of the Gini coefficient in the regressions are significantly negative. It suggests that a 1 percentage point increase in the Gini coefficient reduces the GDP per capita, on average, by US$154 for the countries in Asia and the Pacific region. This statistical relationship is robust to different specifications of the regression model.

While the adverse impact of inequality on economic growth is an important reason on itself to promote policies to reduce inequality, lower economic growth also harms efforts to reduce poverty. Countries are most successful in reducing income poverty when they generate earnings opportunities through the expansion of employment and businesses for those at the bottom of the income distribution.[33] The inequality-poverty nexus is further discussed below.

1.5.2 Inequality and poverty

The growth-poverty-inequality nexus has been studied by Bourguignon (2004) and others. An important result is that if economic growth is held constant, poverty reduction is negatively affected by increases in inequality.[34] Understanding this relationship is important for assessing the prospects and pace of poverty reduction in the region.

Following a methodology proposed by Zhang and Wan (2006) described in Annex 1.5, we estimate the impact of changes in inequality on extreme poverty in 24 selected countries between 1990 and 2014. We find that in ten countries of the region for which inequality increased over the period studied – Bangladesh, China, India, Indonesia, Lao People's Democratic Republic, Republic of Korea, Singapore, Sri Lanka, Tajikistan and Viet Nam – an additional 153 million, representing about 5 per cent of their combined population, could have been lifted out of poverty if inequality had not increased. On the other hand, in 14 countries – Armenia, Azerbaijan, Bhutan, Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Russian Federation, Thailand, and Turkey – in which income inequality declined during the period, the improvement in income distribution helped 14 million people come out of extreme poverty. In sum, the region could have at least lifted around 139 million people out of poverty if inequality had not changed during the past decade (Figure 1.13).

Figure 1.13 Poverty impact of income inequality, selected Asia-Pacific countries, 1990-2014
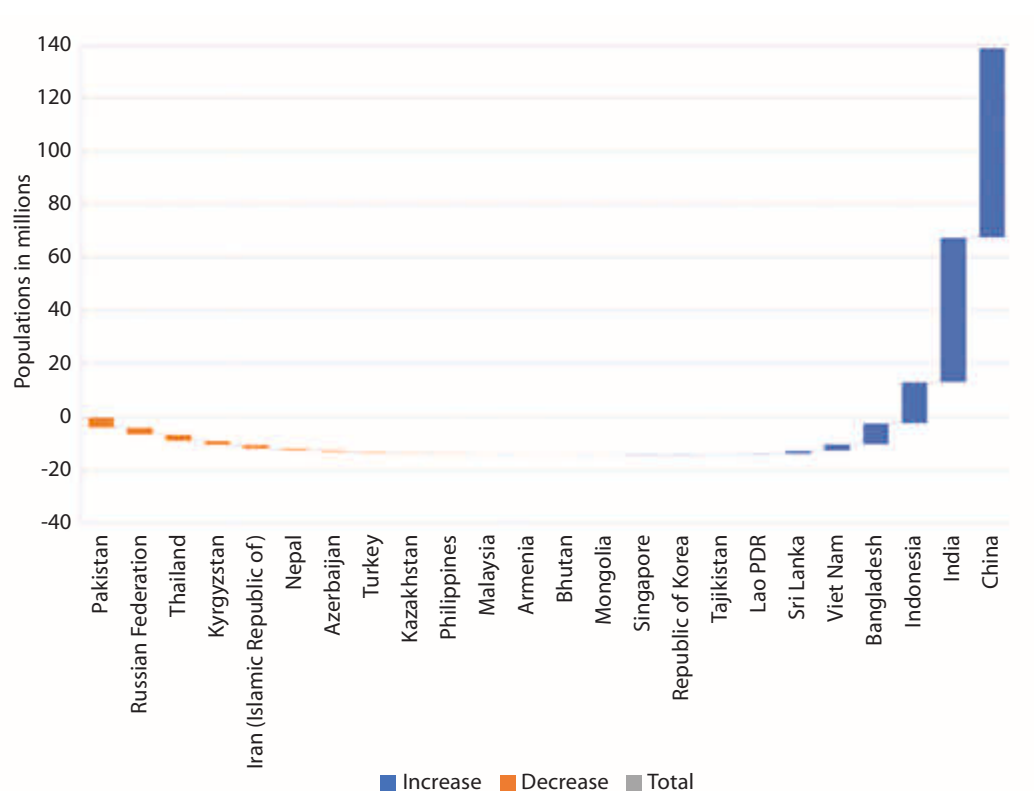
Source: ESCAP.

1.6 CONCLUSIONS AND RECOMMENDATIONS

This chapter had set out to better understand the trends of income and wealth inequality in the Asia-Pacific region. It has also examined the sources of regional income inequality at the disaggregated level. Furthermore, the discussion explored ways to illustrate the various drivers of the income inequality, along with implications for growth and extreme poverty during the past two decades.

Income and wealth inequality are growing and remain at an all-time high in the Asia-Pacific region

- Measured by the population-weighted market income Gini coefficient, the region's average inequality increased from 32.7 in the early 1990s to 38.1 in the early 2010s.
- In China, India and the Russian Federation, three major developing countries that constitute 62 per cent of the regional population, the top 10 per cent of the population accounts for 47 per cent of their national income, on average.

Economic growth has not been inclusive, leaving millions of people in a disadvantaged and precarious situation

- The ratio of the average consumption of the poorest 40 per cent of the population over the average consumption for the whole population dropped from 50.8 per cent to 48.5 per cent between 1995 and 2013.
- In many of these countries, the increase in income inequality has been coupled with a higher concentration of wealth among the already rich, or the top 10 per cent of the population.

Income and wealth inequality vary across subregions and countries

- Subregions presented a more mixed picture. Within South and South-West Asia, inequality increased in Bangladesh, India, Nepal and Sri Lanka and decreased in the Islamic Republic of Iran, Pakistan and Turkey. Within South-East Asia, inequality increased in Indonesia, Lao People's Democratic Republic and Viet Nam and decreased in Cambodia, Malaysia and Thailand.
- In China, India and Indonesia the Gini coefficient increased by about 10, 8 and 4 percentage points respectively over the past decade.

The services sector is a major contributor to income inequality across the countries in the region

- Evidence suggests that the service sector has accounted for more than half of total income inequality.

- The industrial sector's contribution to income inequality has declined, while the contribution of the agricultural sector has been negligible in the past two decades.

Government policies to promote productive investment, particularly in the least developed countries, help to reduce regional income inequality

- Domestic private consumption accounted for nearly half of income inequality on average, but its proportion is falling. In 2015, the second largest contributor (around 37 per cent) was investment.

Globalization played a role in increasing income inequality in the region

- While globalization may promote economic growth, it may also cause income inequality to rise at the country level.
- Policymakers need to account for the economy-wide implications of unabated globalization-related policies on trade, investment and technology.

Governments need to significantly scale-up investment in education and skills and in environmental sustainability

- Public-sector investment in human capital development, along with health and labour-market institutions are critical policy tools.

To finance the above investments, governments need to mobilize significantly larger fiscal resources and strengthen governance frameworks

- Initially, fiscal policies may not be effective in reducing income inequality, but after a threshold level, higher tax revenue may help in reducing income inequality. The same is also true in the case of governance issues such as political stability and regulatory quality.

Reducing income inequality can play a pivotal role in shaping *inclusive* economic growth

- A 1 percentage point increase in the Gini coefficient reduces GDP per capita, on average, by US$154 for countries in the Asia-Pacific region.
- This potential loss is huge given that several developing and least developed countries in the region already witnessed an increasing level of income inequality.

High levels of income and wealth inequality inhibit poverty reduction efforts

- The Asia-Pacific region could have lifted around 153 million more people out of poverty if income inequality had not increased in 10 countries during the past decade.

ENDNOTES

[1] The 2030 Agenda for Sustainable Development is available online from https://sustainabledevelopment.un.org/ post2015/ transformingourworld.

[2] United Nations System Chief Executives Board for Coordination (2017).

[3] See, e.g. United Nations System Chief Executives Board for Coordination (2017); IMF (2017); World Bank (2018); UNDP (2013); ADB (2012); ESCAP (2015a).

[4] Different researchers have used different criteria to define the middle class. ESCAP (2016, p. 40), for instance, defines the middle class as individuals with incomes of between US$10 and US$20 per day in international dollars of 2005 (US dollars of 2005 adjusted for differences in purchasing power parity across countries). The share of the Asia-Pacific population that is middle class remains small, but it is growing quickly. In China it increased from less than 1 per cent in 1993 to 20.6 per cent in 2012 (ESCAP, 2016, p. 41).

[5] Yoshino and Helble (2016).

[6] Boushey, DeLong and Steinbaum (2017).

[7] Basu and Das (2012).

[8] The founders of four of the five companies mentioned in this sentence are among the top-20 world's billionaires, with net worth ranging between US$39 billion and US$112 billion. See www.forbes.com/billionaires/ list/ (accessed 7 March 2018).

[9] See Isgut and Weller (2016) for an analysis of recent experiences in Latin America and Asia in developing labour market institutions for both TVET and unemployment protection.

[10] For clarity of exposition, the Gini coefficient is normalized to the 0-100 range in this report.

[11] The usual data source for income distribution measures, such as the Gini coefficient, is household surveys, which often do not capture high-income individuals thus underestimating inequality. Recent research by Thomas Piketty and his collaborators is attempting to overcome the limitations of household surveys through the World Wealth and Income Database by combining different data sources, such as national accounts, survey data, fiscal data, and wealth rankings, to obtain more accurate measures of inequality. See http://wid.world/.

[12] See Basu (2017).

[13] In 2015, the population of China, India, Indonesia and Bangladesh was 3.1 billion, compared with a population of 4.4 billion for the whole Asia-Pacific region.

[14] See, e.g. Ivaschenko (2002); Slay (2009).

[15] For further argumentation along these lines, see ESCAP and Oxfam (2017).

[16] If the distribution was totally equal, the Lorenz curve would coincide with the 45-degree line and the Gini coefficient would be 0. If the distribution was totally unequal, with only one individual receiving all the income or consumption and the rest receiving nothing, the Lorenz curve would coincide with the horizontal axis and join vertically the 45-degree line for the richest individual, in which case the Gini coefficient would be 1.

[17] This assumption is required due to the lack of distributional data for GNI in most countries. The lack of within-country distributional data implies that these Lorenz curves capture only income inequality between countries.

[18] Available from: http://www.forbes.com/billionaires/list/.

[19] World Inequality Lab (2018, p. 12).

[20] The importance of governance and institutional factors in explaining inequality was highlighted, among others, by Stiglitz (2012); DESA (2016a); and UNESCO (2016).

[21] See Kuznets (1955).

[22] See, e.g. Piketty (2014).

[23] See chapter 3 for further analysis on this topic.

[24] Lewis (1954).

[25] See ESCAP (2015a).

[26] See Galor and Zeira (1993) and Fishman and Simhon (2002)

[27] See Alesina and Rodrik (1994). Similarly, Berg and Ostry (2011) find that while increased income inequality may shorten the duration of economic growth spurts, poorly designed efforts to lower inequality could distort incentives and undermine economic growth.

[28] See Gupta (1990).

[29] See, e.g. the studies included in Kanbur, Rhee and Zhuang (2014).

[30] See for instance, ESCAP (2013).

[31] See, e.g. Bourguignon and Dessus (2009); World Bank (2018); ESCAP, ADB and UNDP (2013; 2017).

[32] Wan, Lu and Chen (2006).

[33] ESCAP (2015b; 2017b).

[34] See also Banerjee and Duflo (2003).