4. Sharing the Growth Dividend: Analysis of Inequality in Asia

Introduction and Main Findings

Rising inequality in many countries has attracted much attention from the public and policymakers alike.[1] Until about 1990, Asia grew strongly and secured large gains in poverty reduction while simultaneously achieving a fairly equitable society (Jain-Chandra and others 2016). A large part of this success was due to the "miracle" economies—Hong Kong Special Administrative Region, Korea, Singapore, and Taiwan Province of China—where sustained rapid growth was accompanied by equitable income distribution.

Since the early 1990s, however, the region has witnessed rising income inequality—a break from its own remarkable past that has resulted in high levels of inequality in large Asian emerging markets. This is of concern for two reasons.

First, the recent literature has found that elevated levels of inequality are harmful for the pace and sustainability of growth (Dabla-Norris and others 2015; Easterly 2007; Ostry, Berg, and Tsangarides 2014). In particular, high levels of income inequality can lead to suboptimal investment in health and education, which weighs on growth (Aghion, Caroli, and Garcia-Peñalosa 1999). Widening inequality can also weaken the support for growth-enhancing reforms and may spur governments to adopt populist policies and increase the risk of political instability (Rodrik 1999).

Second, increases in inequality in Asia have had a dampening effect on the impact of growth on poverty reduction, leading to less inclusive and less pro-poor growth compared with Asia's past (Balakrishnan, Steinberg, and Syed 2013). In

addition to income inequality, Asia, in line with other regions, faces considerable inequality in opportunities.

As Asia faces turbulent times, it is critical for the region to combat rising inequality of income and opportunities. More equal incomes and opportunities would support a path to durable and sustainable growth. Recognizing this, a number of countries have placed the issue of inclusive growth as central to their national goals and, in a number of cases, explicitly in their development plans. China's Thirteenth Five-Year Plan (2016–20) emphasizes a more balanced, inclusive, and sustainable growth model, as do India's Twelfth Five-Year Plan (2012–17) and the Philippine Development Plan (2011–16). This objective is also central to development plans in Indonesia and Malaysia.

This chapter revisits the increasingly important topic of widening income inequality, focusing on Asia, home to more than half of the world's population. It contributes to a growing literature on the evolution and drivers of income inequality. The goal is to document the developments in various measures of income inequality as well as the inequality of opportunities over time in Asian economies. It will also analyze the drivers of income inequality, as well as the extent to which these are different in Asia, and discuss policies to generate more inclusion.

The main findings are the following:

- Within-country income inequality has risen in most of Asia, in contrast to many regions. In some larger countries (such as China and India), spatial disparities, in particular between rural and urban areas, explain much of the increase. In the past, rapid growth in Asia came with equitable distribution of the gains. But more recently, while the fast-growing Asian economies have lifted millions out of poverty they have been unable to replicate the "growth with equity" miracle.

This chapter was prepared by Sonali Jain-Chandra and Tidiane Kinda (lead authors), Shi Piao, and Johanna Schauer. The chapter is based on Jain-Chandra and others (2016).

[1]This chapter focuses on within-country inequality. Convergence of income across economies has led to a decline of inequality between countries during recent decades.

Higher income inequality has also lowered the effectiveness of growth to combat poverty and prevented the building of a substantial middle class.

- In addition to inequality of income, Asia also faces considerable inequality of opportunities—with lower-income individuals having relatively limited access to health, education, and financial services—as well as dual labor markets. This is of critical importance as these factors sow the seeds for wider income inequality in the future and delink economic outcomes from an individual's efforts.

- Global factors, such as skill-biased technological change, have played a particular role in the increase of inequality in Asia, but regional and country-specific factors have also been critical. In some respects the drivers of inequality in Asia are different from those in other regions. Financial deepening has been equalizing in Asia, in contrast to other regions. In addition, much as in the rest of world, greater progressivity in taxation has had an equalizing effect in Asia. On the other hand, expenditure policies such as social sector spending, education spending, and capital expenditure have been associated with higher income inequality in Asia (contrary to the rest of the world), owing to weak coverage and the benefits disproportionately accruing to those at the higher end of the income distribution.

These findings suggest that policies could have a substantial effect on reversing the trend of rising inequality in Asia. It is imperative to address inequality of opportunities, in particular to broaden access to education, health, and financial services, as well as to tackle labor market duality and informality. Strengthening the redistributional effect of fiscal policy is also essential. This includes expanding and broadening the coverage of social spending through well-targeted interventions, while avoiding costly across-the-board subsidy schemes, and further increasing tax progressivity.

Recent Trends and Developments
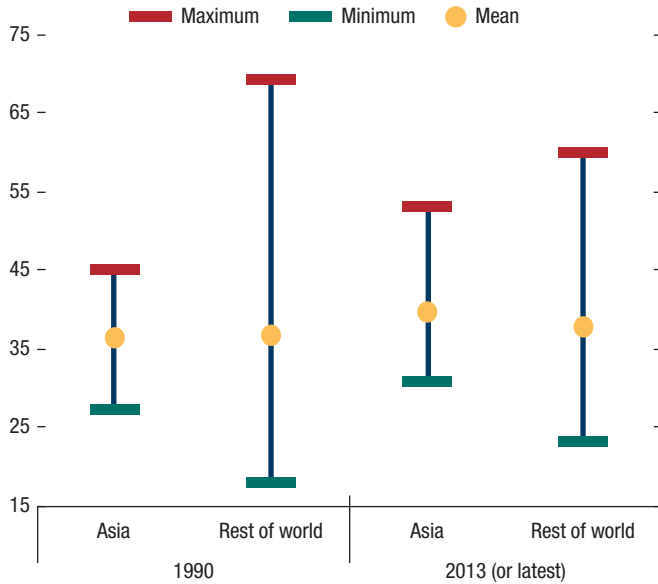
Income Inequality in Asia[2]

Asia has been a growth leader and has achieved remarkably high growth for sustained periods and lifted millions out of poverty. During 1990–2015, the region grew at about 6 percent a year, notwithstanding the sharp slowdowns during the Asian financial crisis and the global financial crisis.

However, this impressive economic performance has been accompanied by rising inequality in a number of Asian economies. The level of the Gini coefficient is now higher in Asia than the average for the rest of the world. Furthermore, apart from that in Asia and Organisation for Economic Co-operation and Development countries, inequality has been trending down in most other regions. The average net Gini coefficient (based on income net of taxes and transfers) rose from 36 in 1990 to 40 in 2013 in Asia. Over the same period, the average Gini for the rest of the world rose by less than 2 points (Figure 4.1). More strikingly, on a population-weighted basis, the net Gini in Asia rose from 37 in 1990 to 48 in 2014, reflecting the sharp rise in inequality in the most populous countries (Figure 4.2). While these changes might seem small, inequality and especially the Gini measure are very persistent over time. On average, the within-country standard deviation in this sample is 2.5 points. Consistent with the rest of the world, the level of inequality is higher in emerging market economies than in advanced economies, and it has been rising faster in the former set of countries (Figures 4.3 and 4.4).

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[2]Any analysis of inequality—and this chapter is no exception—is confronted with a number of challenges, as cross-country comparisons are highly challenging. High-income countries tend to report income inequality measures, while low- and middle-income countries tend to report consumption-based measures. Major differences can also exist among the same inequality measures, such as the sampling unit, the definition of income (net or gross income), or the time period of expenditures or earnings. This chapter relies on the Standardized World Income Inequality Database (SWIID Version 5.0) assembled by Frederick Solt. This data set has the advantage of maximizing the comparability of income inequality data while maintaining the broadest possible coverage across countries and over time. While it is not adjusted for cross-country comparison, this chapter also uses the PovcalNet database from the World Bank for more detailed information on national distributions of inequality.
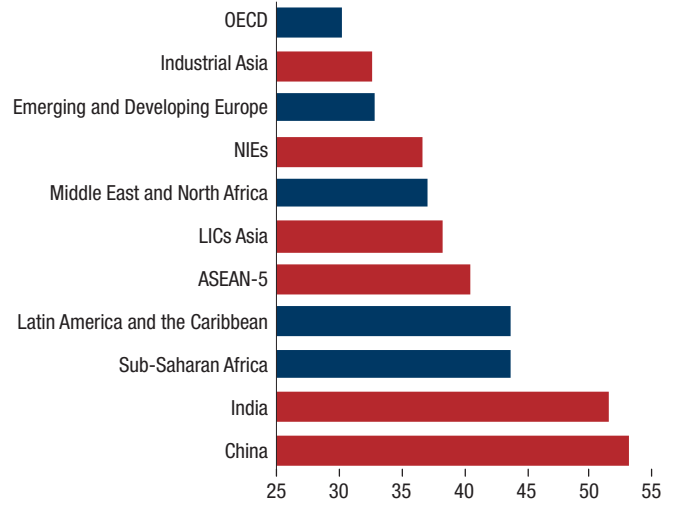
Figure 4.1. World and Asia: Income Inequality
(Net Gini index; in Gini points; average across the region)

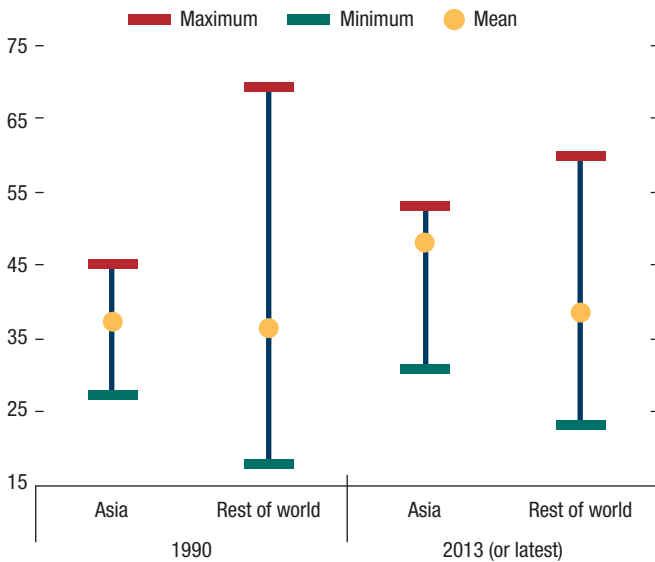
Sources: SWIID Version 5.0; and IMF staff calculations.

Figure 4.2. World and Asia: Population Weighted Income Inequality
(Net Gini index; in Gini points; population-weighted average across the region)

Sources: SWIID Version 5.0; World Bank, World Development Indicators database; and IMF staff calculations.

Figure 4.3. Regional Comparison: Income Inequality Level
(Net Gini Index; in Gini points; 2013; average across the region)

Sources: SWIID Version 5.0; IMF, World Economic Outlook database; and IMF staff calculations.
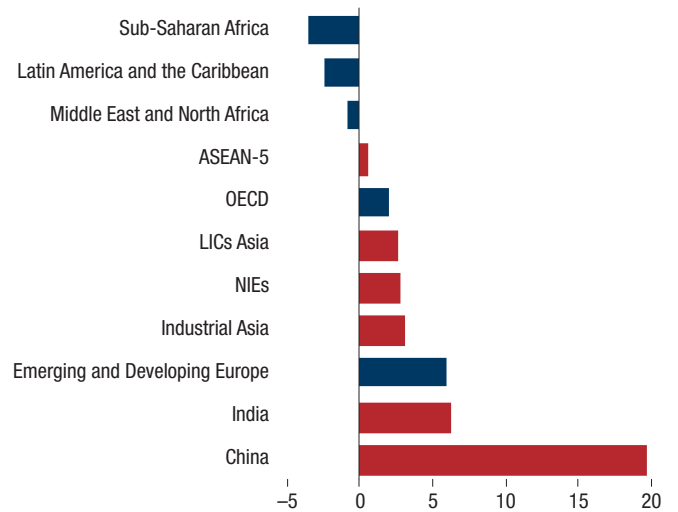Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; LIC = low-income countries; NIEs = newly industrialized economies; OECD = Organisation for Economic Co-operation and Development.

Figure 4.4. Regional Comparison: Income Inequality Trend
(Net Gini Index; in Gini points; change since 1990; average across the region)

Sources: SWIID Version 5.0; IMF, World Economic Outlook database; and IMF staff calculations.
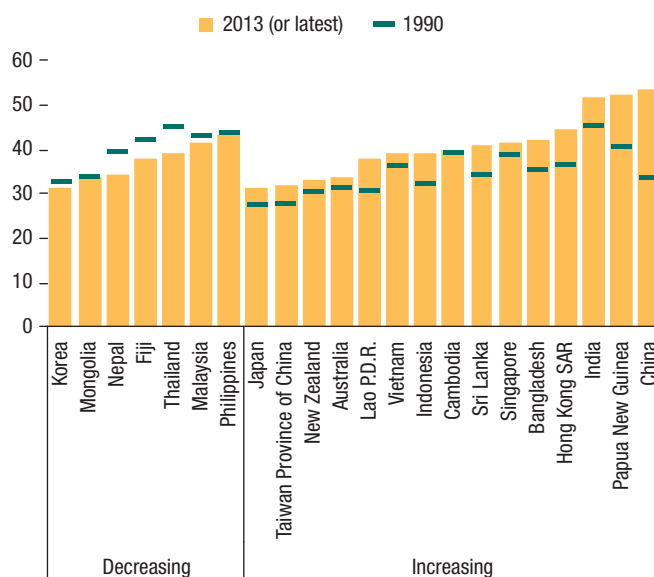Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand; LIC = low-income countries; NIEs = newly industrialized economies; OECD = Organisation for Economic Co-operation and Development.

Figure 4.5. Asia: GDP per Capita and Net Gini Index
(Year-over-year percent change)

Sources: SWIID Version 5.0; IMF, World Economic Outlook database; and IMF staff calculations.

Figure 4.6. Selected Asia: Net Gini Index
(Gini points)
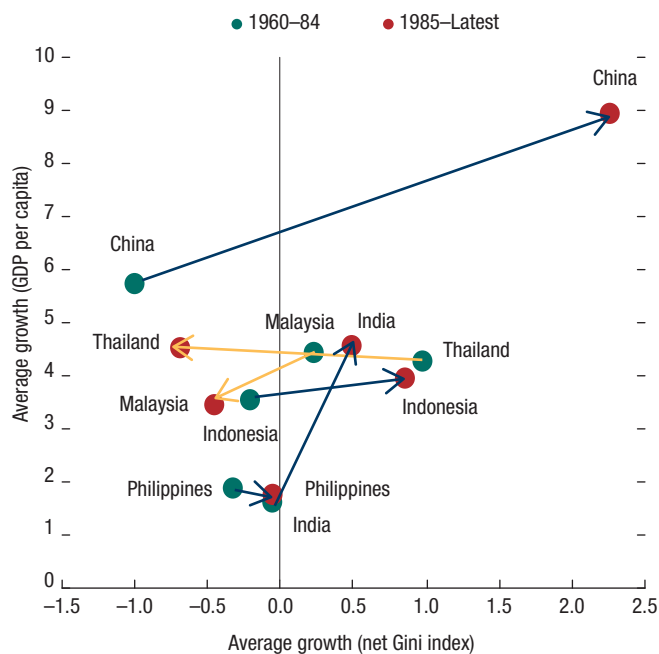
Sources: SWIID Version 5.0; and IMF staff calculations.

Country- and subgroup-specific trends are as follows:

- In **China**, the Gini coefficient rose from 33 in 1990 to 53 in 2013. From being one of the most equitable economies in 1990, China now has inequality that is higher than in most other regions, with inequality in urban areas rising more sharply (Box 4.1 and Figures 4.5 and 4.6).

- In **India**, the Gini coefficient also rose substantially. In 1990, inequality in India was higher than in China, with a net Gini of about 45. By 2013, the net Gini in India had increased to 51, driven by the inequality within urban areas, as well as by the urban-rural gap.

- In **Korea**, the Gini coefficient fell from 32 in 1990 to 31 in 2010, suggesting a small decrease in inequality.

- In **Japan**, the Gini coefficient, albeit the lowest in the region, rose from 27 in 1990 to 31 in 2010.

- Among the **emerging markets in the Association of Southeast Asian Nations (ASEAN)**, inequality trends have diverged, with inequality rising in Indonesia and falling in Malaysia and Thailand and to some extent in the Philippines, in part due to policy efforts (Box 4.2).

- **Low-income countries** (LICs) in Asia have generally witnessed an increase in inequality, though less so than in Asian emerging markets, with the average net Gini in Asian LICs rising from 36 in 1990 to 39 in 2013.

Rising inequality has also been reflected in a higher income share of the top decile, consistent with global trends. In 2013, the top decile of the population earned 32 percent of the income share in emerging Asia and about 28 percent in advanced Asia, compared with 30 percent and 27 percent of the income share, respectively, in 1990 (Figure 4.7). At about 28 percent in both 1990 and 2013, the income share of the top decile remained broadly unchanged in LIC Asia despite the concomitant increase in net Gini. The dynamics of the income shares reveal that in the countries where inequality

Figure 4.7. Asia: Top 10 Income Share
(Percent; average across the region)
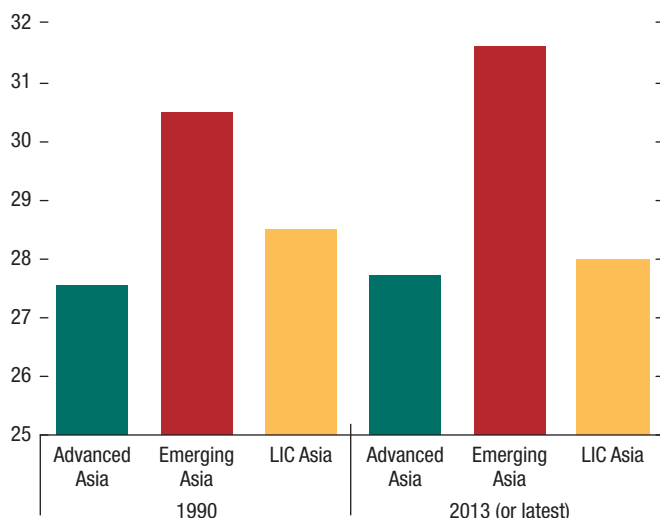
Sources: World Bank, PovcalNet database; and IMF staff calculations.
Note: LIC = low-income country.

Figure 4.8. Selected Asia: Growth of Income Share by Decile
(Year-over-year percent change; change during 1990–2010)

Sources: World Bank, PovcalNet database; UN World Institute for Development Economics Research; and IMF staff calculations.
Note: Decreasing group comprises Fiji, Korea, Malaysia, Nepal, the Philippines, and Thailand; Increasing group comprises Bangladesh, China, India, Indonesia, Lao P.D.R., New Zealand, Sri Lanka, and Vietnam.
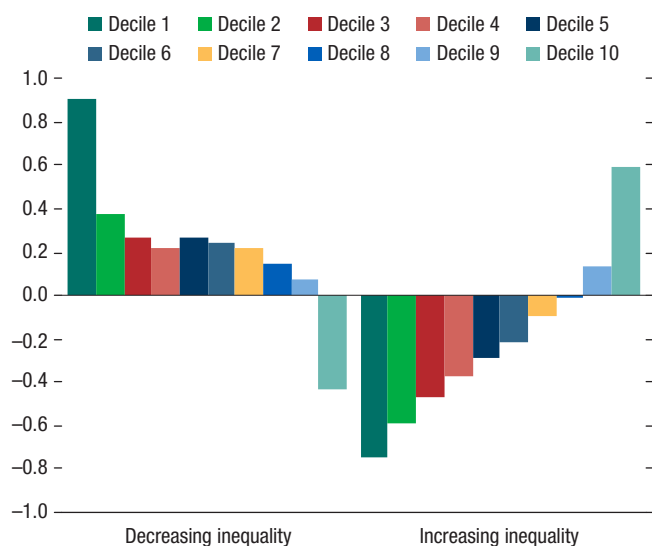
increased on average, the bottom 70 percent of the population got a smaller share of the pie, while the top decile of the income distribution incurred large gains in income share (Figure 4.8).

Inclusiveness of Growth in Asia

Growth incidence curves, which depict the annualized growth of mean income or consumption for every decile of the income distribution between two points in time, are used to gauge the extent of inclusiveness of growth. In Asia, growth was, on average, higher over 2004–14 than in the previous decade for all deciles of the distribution. However, growth for the bottom decile was considerably below that for the rest of the income distribution (Figure 4.9).

Asia did succeed in immensely reducing the share of people living in poverty (that is, below $2 a day) over the past two decades, with rural China achieving the largest gains in poverty reduction, decreasing the headcount ratio by 67 percentage points from 1990 to 2012 (Figure 4.10). Poverty reduction in Asia can be attributed exclusively to growth, despite

Figure 4.9. Asia: Growth in Mean Income/Consumption by Decile
(Percent change; average annual growth during each period; average across the region)
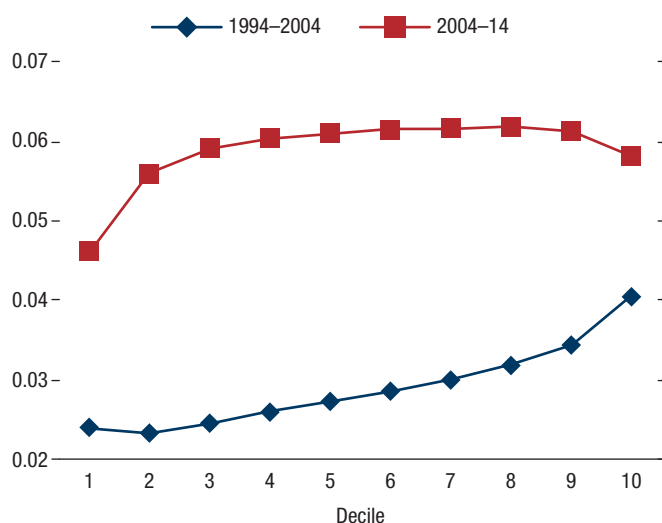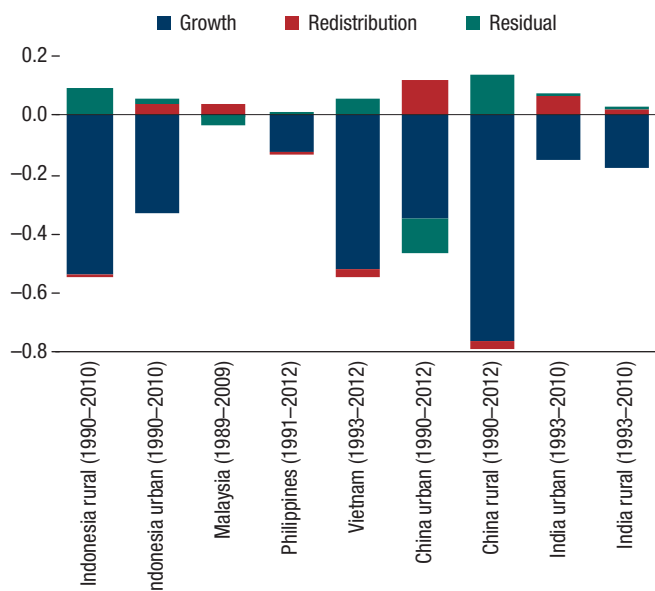

Sources: World Bank, PovcalNet database; UN World Institute for Development Economics Research; and IMF staff calculations.

Figure 4.10. Poverty in Asia
(US$2 a day in 2011 PPP; percent of total population)
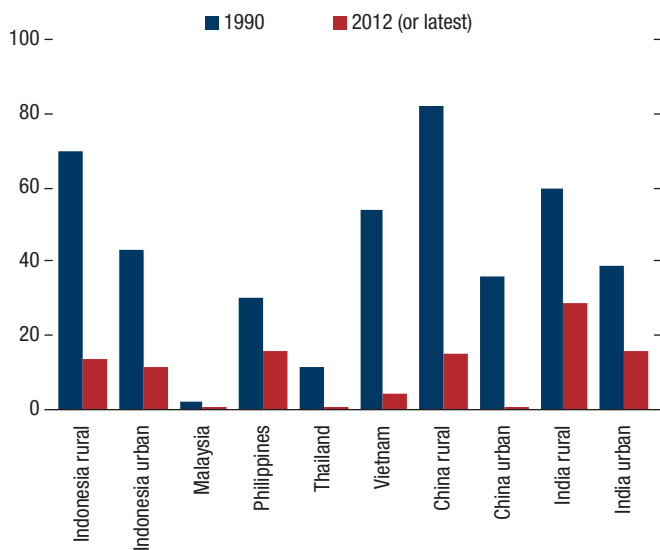
Source: World Bank, PovcalNet database.
Note: PPP = purchasing power parity.

Figure 4.11. Decomposition of Changes in Headcount Ratio
(US$2 a day in 2011 PPP; change during the period indicated in parentheses)

Sources: World Bank, PovcalNet database; and IMF staff calculations.
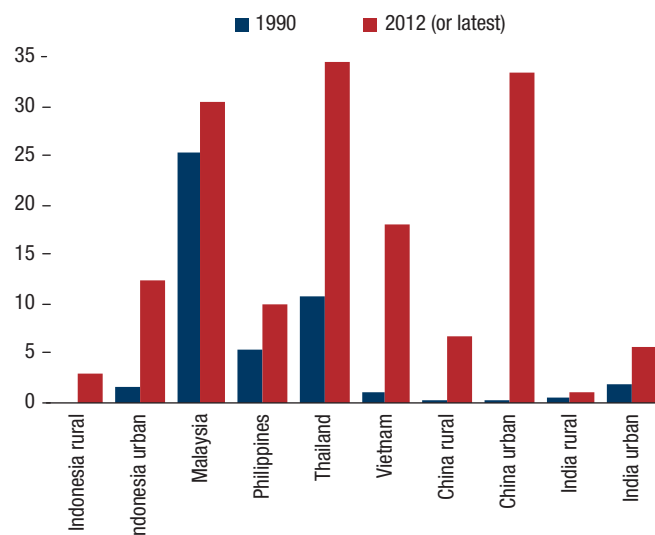Note: PPP = purchasing power parity.

countervailing redistributional effects for most countries (Figure 4.11).[3]

However, while growth has succeeded in alleviating poverty, it has been much less successful in building a middle class (Figure 4.12).[4] China managed to increase its middle class in urban areas, as did Thailand, while India and Indonesia struggled to lift sizable portions of their populations toward higher income levels.

Inequality of Opportunities in Asia

In addition to the inequality of outcomes such as income, Asia also faces considerable inequality of opportunities. Inequality of opportunity and access to education and health services can worsen education and health outcomes,

Figure 4.12. The Middle Class in Asia
(US$10–$20 a day in 2011 PPP; percent of total population)

Source: World Bank, PovcalNet database.
Note: PPP = purchasing power parity.

[3]The analysis contained in Figure 4.11 relies on the decomposition method by Datt and Ravallion (1992) to disentangle the pure growth effect on poverty reduction from the redistributional effect of changes in the income or consumption distribution. While the former will always be positive, the latter can take either direction depending on whether changes in the income distribution have been adding to the share of the poor or taking away from them.

[4]We define the middle class as consuming between $10 and $20 a day (2011 purchasing power parity), following the Pew Research Center.

Figure 4.13. Education by Wealth Quintile
(Attained less than four years of education; percent of total 20–24-year-old population)
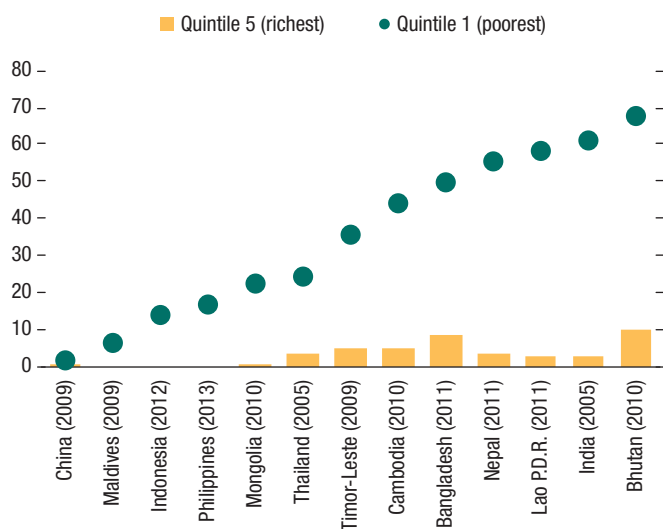
Source: World Inequality Database on Education (WIDE).

Figure 4.14. Health by Wealth Quintile
(Percent; coverage of reproductive, maternal, newborn, and child health interventions)
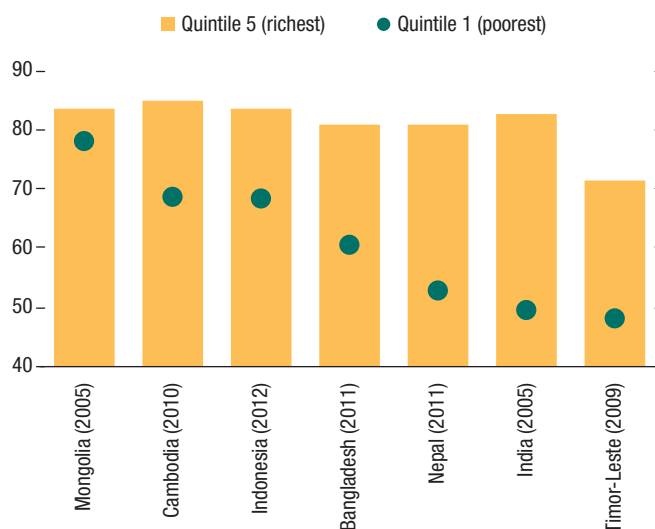
Source: World Health Organization, Health Equity Monitor database.

hampering productivity and perpetuating income inequality. The lack of adequate financial services also constrains the ability of people, particularly low-income individuals, to borrow for investment purposes and to finance education spending.

Education

There is a large gap between the educational attainment of the wealthiest quintile of the income distribution and that of the poorest quintile. As shown by Figure 4.13, the percentage of people with less than four years of schooling is much higher for the poorest quintile than for the richest quintile. This is particularly true in Bhutan, Cambodia, India, and Nepal, among other countries.[5]

Health

There is also a substantial gap in access to health care between high- and low-income households,

[5]It appears that such a gap in educational attainment does not exist in China. However, a look at upper-secondary completion rates points to a rural-urban gap of 39 percentage points.

in particular in developing countries. Figure 4.14 shows the coverage of reproductive, maternal, newborn, and child health interventions by wealth quintile. It illustrates that there is a large difference in health coverage of poor and rich individuals, particularly in South Asia.

Financial Services

There are large disparities in financial access across the income distribution. The share of adults with a bank account is much higher in the top 60 percent of the income distribution than in the bottom 40 percent. This is true in a number of Asian economies, including India, Indonesia, Vietnam, and the Philippines, as well as in low-income countries (Figure 4.15).

Labor Market Imperfections

Advanced and developing economies in Asia face different forms of duality in their labor markets, which can also exacerbate income inequality. For Japan and Korea, the duality between regular and nonregular employment has been a key driver

Figure 4.15. Financial Services by Income Share in 2014
(Accounts at a financial institution; percent of population 15 years and older)

Source: World Bank, Global Findex database.

Figure 4.16. Nonregular Employment by Type in 2013
(Percent of total employment)

Source: Organisation for Economic Co-operation and Development (OECD).
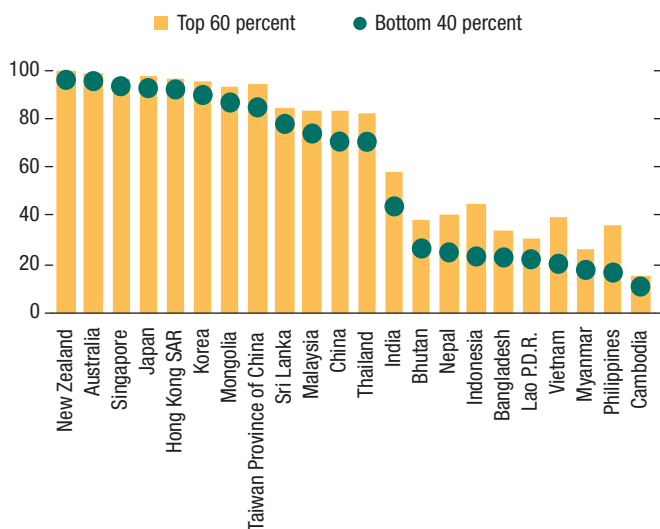
of wage inequality, with nonregular employment constituting about one-third of the labor force in 2013 (Figure 4.16).[6] In developing countries, informality is the biggest driver of dual labor markets and economies, with the share of informality in nonagricultural employment 70 percent or higher in India, Indonesia, and the Philippines (Figure 4.17).

Drivers of Income Inequality

To shed further light on the main factors driving the rise of income inequality in Asia, a fixed-effects panel with Driscoll-Kraay standard errors is estimated on a large sample covering the period 1990–2013.[7] The dependent variable captures income distribution, with the main measure being the net Gini.[8] As the Gini is oversensitive

Figure 4.17. Nonagricultural Informal Employment
(Percent of total nonagricultural employment)

Source: International Labour Organization (ILO).

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[6]While duality can keep unemployment low, nonregular workers typically earn less and receive fewer training opportunities and lower social insurance coverage, which contributes to higher wage inequality and lower social mobility (Aoyagi, Ganelli, and Murayama 2015).

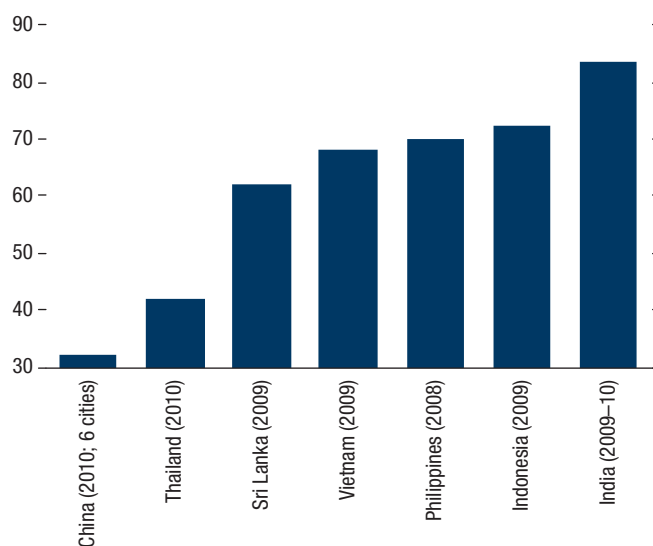[7]Annex 4.1 provides a description of the estimated model and the empirical method.

[8]We also use alternative measures of income inequality such as the market Gini, the income share of the bottom 10 percent, or the income share of the top 10 percent to confirm our main results.

to changes in the middle of the distribution and less sensitive to changes at the top and the bottom, we also confirm our main results using the Palma ratio as an alternative measure of income inequality. The Palma ratio, measured by the income share of the top 10 percent to that of the bottom 40 percent, provides an adequate summary of distributional policies because households between the fifth and ninth decile seem to have a relatively stable share of national income across countries and over time (Gabriel Palma 2006, 2011). Building on various studies in the empirical literature (Woo and others 2013; IMF 2014; Dabla-Norris and others 2015), our explanatory variables are composed of human capital, trade openness, technological progress, financial openness and deepening, fiscal policy, inflation, institutional quality, and economic growth. In addition to country fixed effects, the estimations also include time fixed effects to control for global factors.
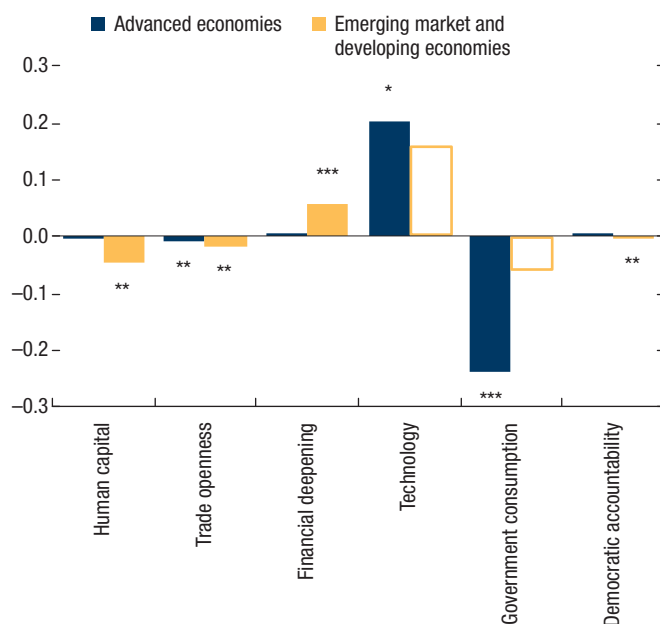
The estimation results confirm previous findings in the empirical literature and highlight the following:[9]

- Increased human capital, more trade openness, higher government spending, and greater democratic accountability are associated with lower income inequality, while financial deepening and technological progress are associated with higher inequality.[10]

- Fiscal policy and technological progress seem to have been the two most important

Figure 4.18. Advanced versus Emerging Market and Developing Economies

Source: IMF staff estimates.
Note: Bars represent coefficients of regression explaining the Gini Index; empty bars indicate the coefficients are not significant.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

drivers of the net Gini for advanced economies (Figure 4.18). Because of their relatively higher tax revenues and spending capabilities, spending policies have a sizable redistributional impact in advanced economies. To illustrate this, the cut in government consumption by 1.4 percentage points of GDP observed between 1992 and 2011 for advanced economies in our sample has been associated with an increase of the net Gini coefficient by about one-third of a Gini point. The importance of technological progress reflects the notion of skill-biased technological change, where innovations, which tend to disproportionately benefit the relatively more skilled and more privileged, increase the returns to education and widen income gaps.

- Financial deepening seems to have been associated with rising inequality in developing countries, suggesting that financial sector deepening benefits mainly

[9]Estimations using fixed effects may be subject to endogeneity, which calls for caution when interpreting the causal relationship between inequality and its determinants. In addition to the fixed effects with Driscoll-Kraay standard errors, we confirm the robustness of our main results with two additional estimation methods: (1) the generalized method of moments (GMM) in first difference, which includes the lagged Gini as a dependent variable, and control for potential endogeneity by instrumenting all explanatory variables; and (2) the multiple-imputation approach, which is a simulation-based approach for analyzing incomplete data and corrects for potential bias due to the presence of imputed values in the Gini coefficients.

[10]We also find evidence of a Kuznets curve for developing economies and an inverse curve for advanced economies. Larger income growth in the highest-income sectors (technology and finance) during boom period supports the inverted Kuznets curve in advanced economies.

higher-income groups in these countries. For instance, the increase by 16 percentage points of GDP in domestic credit observed between 1992 and 2011 has been associated with a higher net Gini by about one Gini point. By providing better opportunities to the less privileged, basic education in developing economies has also been associated with lower inequality.[11]

Is Asia Different?

To investigate whether Asia is different from other regions, we augment our baseline regressions with various interaction terms by combining key policy variables (financial deepening, fiscal policy, and human capital) with Asia dummies. This exercise reveals interesting findings.

Financial Deepening

While financial deepening has been associated with higher inequality in other regions, it has been equalizing in Asia (Figure 4.19). This reflects not only better availability of credit in Asia during the past decade, but also successful policies of financial inclusion that have reached the lower end of the income distribution with an increased geographical outreach. In particular, an equalizing effect of financial deepening has also been found for India across states (Anand, Tulin, and Kumar 2014). In addition, financial inclusion policies seem to have played an important role for three ASEAN countries in achieving a decline in inequality (see Box 4.2). For instance, in Thailand, the number of commercial bank branches per 1,000 square kilometers increased by 50 percent between 2004 and 2012, while the number of automated teller machines per

[11]Because many factors, such as education and access to finance, also tend to have a long-term effect on income inequality, our estimations capture only the short-term effect and should therefore be considered as lower-bound estimates. We also tested the effect of additional variables and found that union density, a measure of labor market institutions, is associated with lower income inequality, while demographic pressure, captured by a larger share of dependents (younger than 15 years and older than 64) and, to some extent, a low gross replacement ratio, is associated with higher income.

Figure 4.19. Asia: Financial Deepening
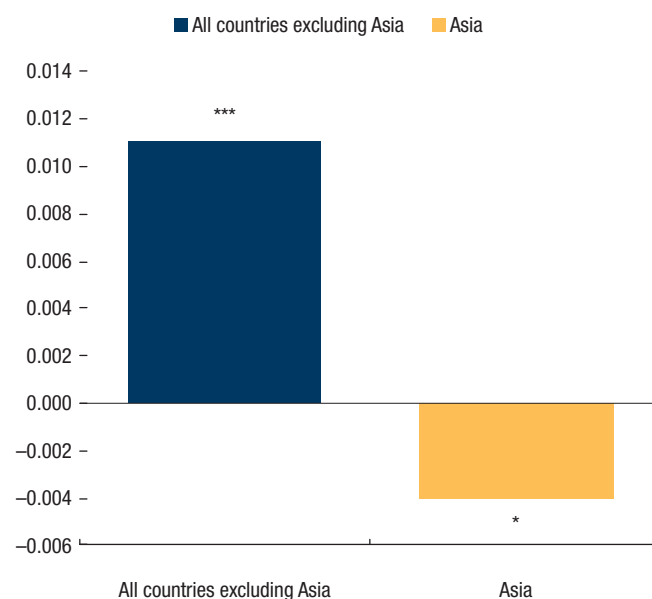
Source: IMF staff estimates.
Note: Bars represent coefficients of regression explaining the Gini Index. The bar for Asia reflects total effect of the policy variable(s) on Asian countries, which is the sum of the average coefficient and the coefficient for the interaction term.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

1,000 square kilometers quadrupled during the same period (Terada and Vandenberg 2014). Figure 4.20 illustrates clearly the relatively good performance of Asian economies when it comes to financial inclusion.

Fiscal Policy

Progressive taxation, measured by the top corporate tax rate and, to some extent, the top personal tax rate, is associated with lower income inequality in Asia and elsewhere (Figure 4.21).[12] Spending policies have had an equalizing effect in other regions, reflecting the possible combination of two channels. First, higher social spending, such as direct transfers, increases the income of the poor through redistribution. Second, higher social, education, and capital spending tend to promote better access for the poor to education and health care, thereby lowering inequality in the long term.

[12]Results are similar when tax progressivity is measured by the ratio of direct to indirect taxes.

Figure 4.20. Population with Bank Accounts in 2014
(Percent of population 15 years or older)
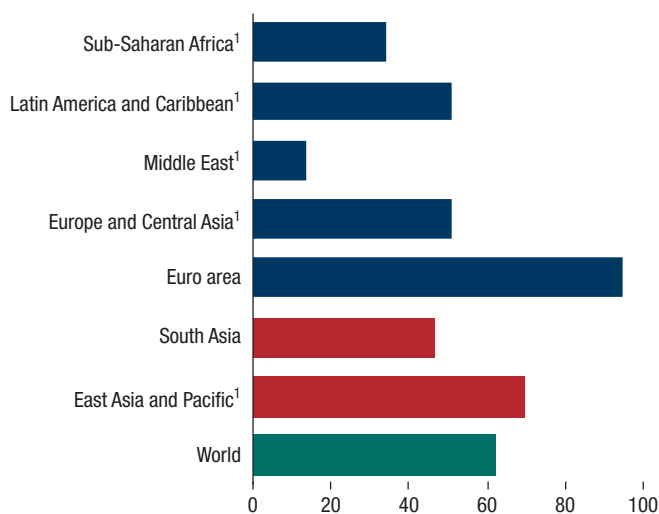
Source: World Bank, Global Findex database.
Note: South Asia comprises Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka.
[1]Includes only developing countries in each group.

However, low and poorly targeted policies may have prevented Asian economies from benefiting in terms of equalizing expenditure policies. Indeed, in contrast to other regions, education and social benefits have all been associated with higher income inequality in Asia.[13] This could be due to lower coverage of government spending, which may disproportionately benefit the rich in Asia (Figure 4.22). More generally, social spending is relatively low in Asia (April 2013 *Regional Economic Outlook: Asia and Pacific*), reflecting lower revenue collection, and this has led to inadequate coverage of social spending such as social insurance. At only 22 percent, the share of the population above the legal retirement age and receiving a pension in Asia is about four times lower than the level in advanced economies or emerging Europe but also much lower than in the Middle East or Latin America (Figure 4.23). Coverage of unemployment benefits is also low in Asia and represents only half of the coverage in other regions.

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[13]A similar finding has been reported for China, in particular (Cevik and Correa-Caro 2015). Capital spending also seems to have been associated with higher inequality in Asia, most likely reflecting regional disparities in the quality of infrastructure (Shi 2012).

Figure 4.21. Asia: Fiscal Policy

Source: IMF staff estimates.
Note: Bars represent coefficients of regression explaining the Gini Index. Empty bars indicate the coefficients are not significant. The bar for Asia reflects total effect of the policy variable(s) on Asian countries, which is the sum of the average coefficient and the coefficient for the interaction term.
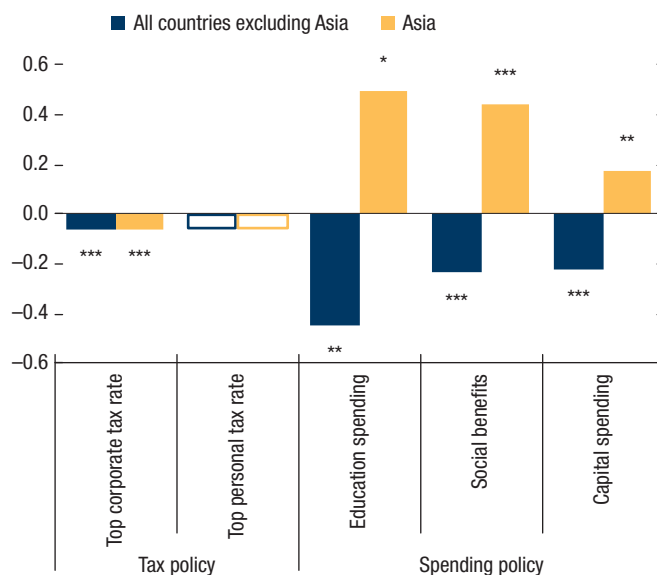*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Figure 4.22. Composition of Social Spending
(Percent of GDP)
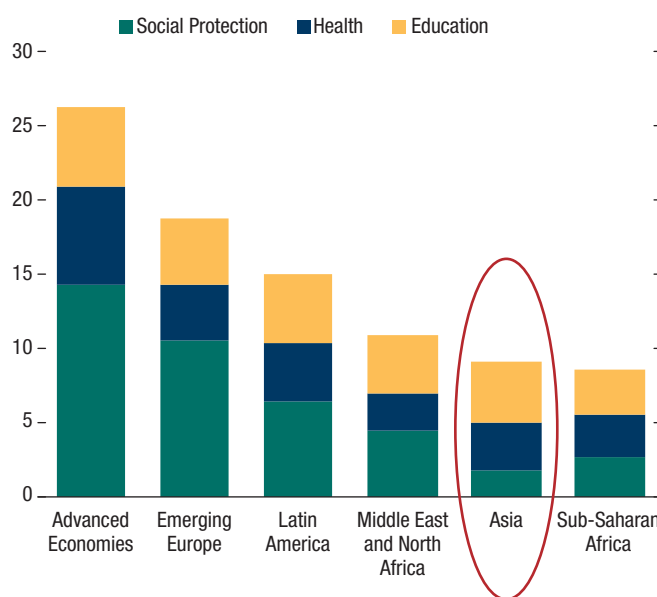
Sources: Asian Development Bank; Eurostat; IMF, World Economic Outlook database; Organisation for Economic Co-operation and Development; United Nations; World Bank; World Health Organization; and IMF staff calculations.
Note: Data are for 2010 or are the latest available.

Figure 4.23. Pension Receipt Rate
(Percent of total population above legal retirement age)

Sources: Eurostat: International Labour Organization; World Bank; and IMF staff calculations.
Note: Data are for 2010 or are the latest available.

Figure 4.24. Asia: Skill Premium
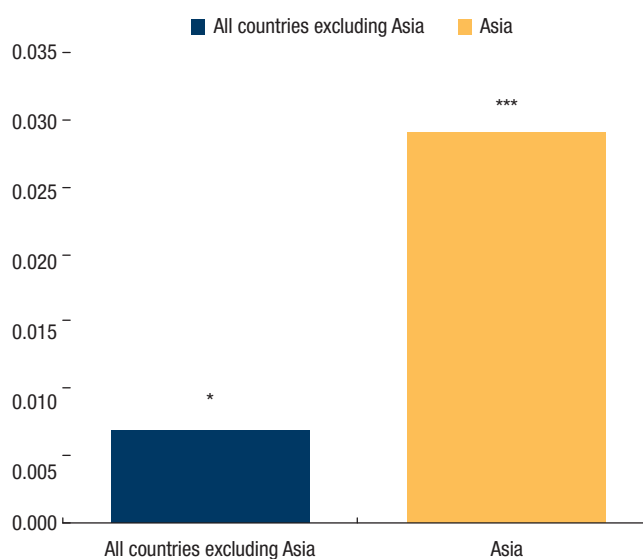

Source: IMF staff estimates.
Note: Bars represent coefficients of regression explaining the Gini Index. The bar for Asia reflects total effect of the policy variable(s) on Asian countries, which is the sum of the average coefficient and the coefficient for the interaction term.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Human Capital and the Skill Premium

To further analyze the importance of education as a driver of income inequality, we specifically investigate the role of the skill premium, identified in the literature as a key driver of income inequality.[14] The skill premium is associated with higher inequality overall, reflecting the fact that gains from education have disproportionately benefited the higher end of the income distribution (Figure 4.24). The skill premium seems to have played a greater role in explaining inequality in Asia. Indeed, the contribution of the skill premium to higher inequality seems to have been three times larger in Asia than elsewhere.[15]

[14]The skill premium is calculated using occupational wages in the Occupational Wages around the World Database, which is based on International Labour Organization data. It reports occupational wages for 161 occupations in 171 countries. We take the ratio of the highest to the lowest reported wage as an approximation of the skill premium.

[15]Investigating the impact of various levels of education illustrates that primary schooling is associated with lower inequality in other regions but does not seem to affect inequality in Asia, reflecting the importance of broadening higher education to compress the skill premium. Higher-level education (tertiary education) is associated

This has also been confirmed by Barro and Lee (2010), who find that Asian countries have the highest returns to schooling after advanced economies (Figure 4.25). Higher human capital has also supported skill-biased technological progress, increasing unequally distributed capital income and reducing labor share (Box 4.3).

Conclusions and Policy Implications

This chapter illustrates that income inequality has risen in most of Asia, in contrast to many other regions. While in the past, rapid growth in Asia has come with an equitable distribution of the gains, more recently, fast-growing Asian economies have been unable to replicate the "growth with equity" miracle. The growing consensus that high levels of inequality can hamper the pace and sustainability of growth suggests that it is imperative for Asia to

with greater income inequality, supporting the existence of a skill premium for the relatively limited highly skilled labor force.

Figure 4.25. Regional Comparison: Return to Schooling Rate
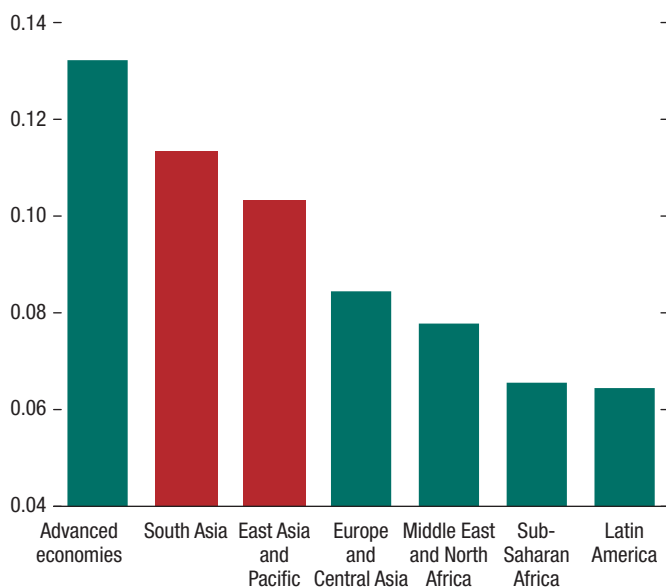
Source: Barro and Lee (2010).
Note: South Asia comprises Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka.

address distributional issues. In turbulent times, as currently in Asia, tackling the inequality of income and opportunities would help ensure durable and sustainable growth not only today but also tomorrow. This implies implementing a number of policies, including fiscal, financial, and labor market policies.

Designing More Inclusive Fiscal Policies

- To enhance the effectiveness of redistributive fiscal policies, tax and expenditure policies need to be considered jointly as well as to strike a balance between distributional and efficiency objectives (IMF 2014). Although taxes are aimed at collecting revenue, including financing redistributive transfers, improving their progressivity and reducing exemptions and preferential rates would help improve their efficiency and contribute to increasing equity. Expanding and broadening the coverage of social spending is critical for more effective redistribution. This includes improving low-income families' access to

higher education and adequate health services as well as better targeting of social benefits.

- While lower tax and spending levels and higher reliance on indirect taxes limit the extent of fiscal redistribution in developing economies, including developing Asia, fiscal policy can still play an important role in lowering inequality. On the tax side, broadening the tax base for income and consumption taxes while increasing the progressivity of direct taxes is important. This includes reducing tax expenditures or loopholes that disproportionately benefit the rich. Tax compliance also needs to be improved to support effective collection. On the spending side, designing well-targeted transfer programs while avoiding costly universal price subsidy schemes is key. For instance providing conditional cash transfers tied to schooling of young children can boost equality, human capital, and growth (Ostry, Berg, and Tsangarides 2014). As administrative capacity improves, conditional cash transfers could be expanded in many countries, including Bangladesh, Cambodia, India, Indonesia, Nepal, and the Philippines. Public spending to improve and broaden access to health services and higher education is also important in improving earning potential and reducing income gaps.

Policies to Further Financial Inclusion

- Asia has fared relatively well in boosting financial access among all segments of the population. In a number of Asian economies, government policies have sought to expand the coverage of financial services, giving low-income households and small and medium-size enterprises access to credit, and thus providing enabling conditions for them to invest in education and entrepreneurial activity, respectively.

- More can be done to build on this success, as even now, access to financial services for the bottom 40 percent of the population remains limited. Previous IMF work has identified

benefits from enabling firms to access credit, financing a greater share of investment with bank credit, increasing the number of households with bank accounts, and using bank accounts to receive government transfers and wages (Sahay and others 2015). However, policies to foster financial inclusion have to be designed carefully, mindful of the implications for financial stability and accompanied by upgrades to bank supervision and regulation to protect financial stability.

Tackling Labor Market Duality and Informality

• Reducing labor market duality and informality, while putting in place well-designed labor market policies to boost job creation, can reduce income inequality. In high-income Asian countries, efforts to reduce labor market duality should be accelerated, particularly by addressing gaps in legal protection for regular and nonregular workers and by encouraging new hiring under contracts that balance job security and flexibility. In low- and middle-income countries, policies to reduce informality could lead to more inclusive growth. Measures to improve the overall business environment, simplify business registration and reduce red tape, and provide incentives to facilitate registration and legal recognition would be helpful in reducing the incentives to remain in the informal sector.

Box 4.1. Understanding Rising Inequality in China and India

Spurred by wide-ranging economic reforms, China and India have grown rapidly and reduced poverty sharply. However, this impressive economic performance has been accompanied by increasing levels of inequality, in contrast to the earlier industrializing Asian economies.

Spatial Inequality

Over the past two decades all deciles of the distribution have increased in mean consumption in both countries (Figures 4.1.1–4.1.4). In China, this increase has been most pronounced in urban areas, suggesting that a large contribution to increased inequality stems from differences among rural and urban areas. In India, differences between rural and urban areas have increased, and have been accompanied by rising intra-urban inequality.

Many factors have been identified as key drivers of the inequality between rural and urban areas in China and India. In China, rapid industrialization in particular regions and the concentration of foreign direct investment in coastal areas have led to substantial inequalities between coastal and interior regions, but have decreased in importance in part due to the government's Western Development Strategy adopted in 2000 (Li, Wan, and Zhuang 2014). Other factors also include low educational attainment and low returns to education in rural areas, with the *hukou* system constraining rural-urban migration and thereby exacerbating the effects (Liu 2005; Dollar 2007).

Interprovincial inequality is lower in India than in China, and rising inequality in India has been found to be primarily an urban phenomenon (Cain and others 2014). But, in addition, the rural-urban income gap has increased, and higher rural inflation has been found to be a key driver of this (Kanbur and Zhuang 2014; Anand, Tulin, and Kumar 2014). Educational attainment has also been identified as an important factor explaining rising inequality in India over the past two decades (Cain and others 2014).

Fiscal and Inclusive Policies

India and China have both struggled with basic service delivery in education and health (Chaudhuri and Ravallion 2006). Despite recent improvements, lower levels of tax revenue compared with other regions and a higher reliance on indirect taxes have constrained fiscal redistribution (Piketty and Qian 2009; Li, Wan, and Zhuang 2014; Cevik and Correa-Caro 2015). The two countries have introduced a number of policies to tackle the rising inequality. China introduced the Minimum Livelihood Guarantee Scheme (*Dibao*) for social protection in the 1990s. The coverage of the scheme is now nearly universal, but the income provided remains low (Cevik and Correa-Caro 2015). The scheme has not been found to reduce inequality, but has helped to alleviate poverty (Li and Yang 2009). Various social programs are aiming to expand social safety nets and provide support for the development of rural areas (including New Rural Cooperative Medicare, New Rural Pension Scheme, and the Two Exemptions and One Subsidy Program) and western regions (Western Development Strategy) (Li, Wan, and Zhuang 2014), which might explain some of the positive changes in the distribution from 2002 to 2010.

In India, the government introduced the Mahatma Gandhi National Rural Employment Guarantee Act to support rural livelihoods by providing at least 100 days of employment. Programs to improve education include the National Education Scheme and Midday Meal Scheme. The JAM trinity initiative helped India in making substantial advances in financial inclusion. More recently, programs aiming for universal bank account coverage were launched (IMF 2016b; Sahay and others 2015).

The main author of this box is Johanna Schauer.

Box 4.1 *(continued)*

Figure 4.1.1. Rural China: Consumption by Decile
(Average; constant 2011 purchasing power parity U.S. dollars)
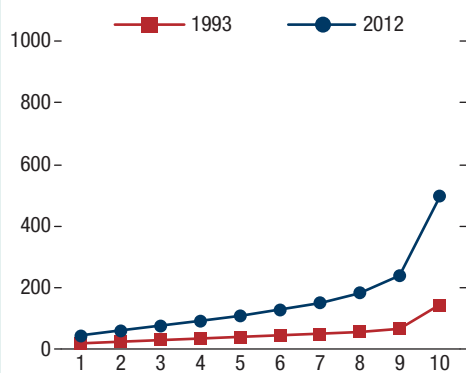
Source: World Bank, PovcalNet database.

Figure 4.1.2. Urban China: Consumption by Decile
(Average; constant 2011 purchasing power parity U.S. dollars)

Source: World Bank, PovcalNet database.

Figure 4.1.3. Rural India: Consumption by Decile
(Average; constant 2011 purchasing power parity U.S. dollars)

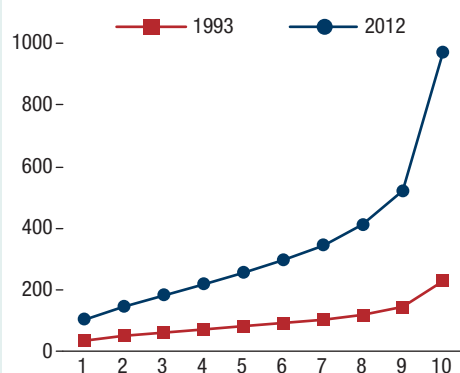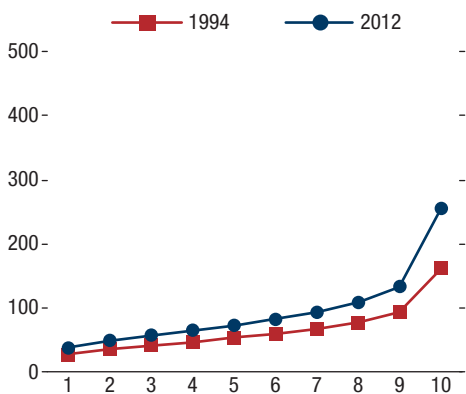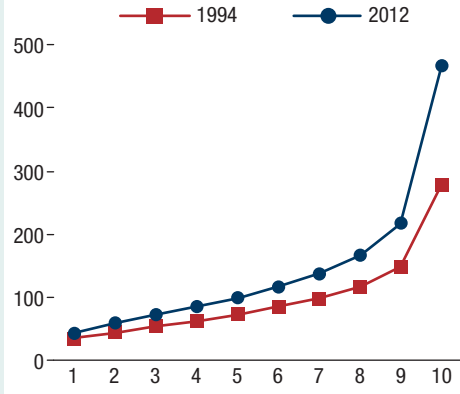
Source: World Bank, PovcalNet database.

Figure 4.1.4. Urban India: Consumption by Decile
(Average; constant 2011 purchasing power parity U.S. dollars)

Source: World Bank, PovcalNet database.

Box 4.2 What Explains Declining Inequality in Malaysia, the Philippines, and Thailand?

Trends in Inequality

With inequality growing in most Asian countries, three economies stand out for narrowing inequality over the past two decades. Only Thailand seems to have achieved a clear downward trend throughout most of the period. The Philippines and Malaysia first recorded an uptick in inequality, followed more recently by declines (Figure 4.2.1). Changes in the deciles of the distribution display an additional disparity. While in Malaysia and the Philippines the bottom 10 percent still lost share despite the decrease in overall inequality, in Thailand the bottom 10 percent were able to gain share (Figure 4.2.2).

The drivers of the long-term downward trend can be attributed to various policies. We focus below on fiscal policies and efforts to increase financial inclusion as two key drivers.
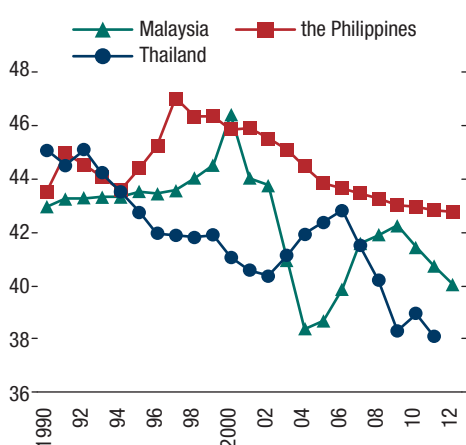
Fiscal Policy

The Philippines implemented a range of measures in the 2000s to alleviate poverty and inequality. In 2002, the Comprehensive and Integrated Delivery of Social Services Program provided resources to poor rural municipalities to invest in public goods (World Bank 2013). A package of pro-poor spending programs was launched in mid-2008 to mitigate the effects of the international food and fuel crisis. In addition, conditional cash transfers, also introduced in 2008, set health and education goals for participants that aim to alleviate persistent inequality in access to education (Chongvilaivan 2014). With a limited budgetary footprint (0.4 percent of GDP), the program had covered 75 percent of all households identified as poor by the national targeting scheme by 2013.

Thailand also undertook various initiatives during the same period. For example, the Universal Health Coverage Scheme, introduced in 2001, has been found to substantially reduce the share of the uninsured, benefiting the poor more than the rich and protecting those who are not poor from becoming impoverished (Yiengprugsawan and others 2010). More recently, energy subsidies have been reduced, while protecting the vulnerable population through means-tested procedures. In addition, the rice pledging scheme was replaced by direct cash transfers only to small-scale farmers.

Malaysia stands out because of its high level of infrastructure compared with many of its peers in the Association of Southeast Asian Nations, which can be traced to a package of reforms in the 1980s and 1990s (Mourmouras and Sheridan 2015). This might have helped to spread the gains from growth more evenly. Moreover, the Government Transformation Program, launched in 2009 to improve public service delivery, resulted in new assistance reaching more than one-fourth of the extremely poor. In addition, a minimum wage was introduced in 2013.

**Financial Inclusion**

In the Philippines, efforts to expand financial access are driven mainly by microfinance institutions: microfinance

Figure 4.2.1. Malaysia, the Philippines, and Thailand: Net Gini Index
(Gini points)

Sources: SWIID Version 5.0; and IMF staff calculations.

The main author of this box is Johanna Schauer.

Box 4.1 *(continued)*

Figure 4.2.2. Malaysia, the Philippines, and Thailand: Income/Consumption Distribution by Decile
(Year-over-year percent change)
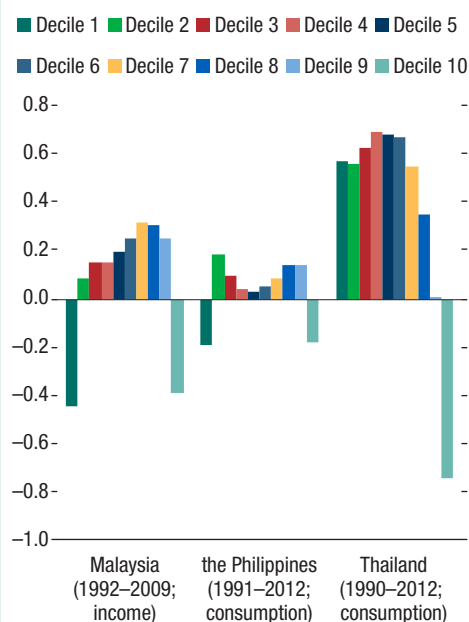
Sources: World Bank, PovcalNet database; and IMF staff calculations.

loans rose continuously during 2002–13.[1] In addition, Congress mandated that from 2008 to 2018 at least 8 percent of banks' loan portfolios be allocated to micro and small enterprises. Micro insurance has also been picking up in recent years, making the Philippines one of the top micro insurance markets in Asia (Llanto 2015).

Thailand has probably been the most ambitious and has achieved the highest level of financial usage compared with other southeast Asian countries (ADB 2013). In 2001, the government established village funds nationwide, providing seed money of 1 million baht to each village to encourage saving and extend credit. This created one of the largest microfinance initiatives in the world, improving risk mitigation and extending risk coverage to the informal sector. The government launched the Agricultural Insurance Scheme in 2011 and created the National Catastrophe Insurance Fund in 2012.

In Malaysia, promotion of financial inclusion through development of microfinance, consumer education, and a protection framework has been a mandated objective since 2009 for the Bank Negara Malaysia (Sahay and others 2015). Enhancing financial inclusion has also been an aim of Malaysia's Financial Sector Blueprint 2011–20. First results can be seen in various inclusion parameters that show a remarkable improvement in financial inclusion between 2011 and 2014. The share of individuals with a bank account at a financial institution increased from 66.2 to 80.7 percent, and the share of the population that borrowed from a financial institution grew from 11.2 to 19.5 percent (Global Findex Database).

[1]Microfinance loans increased annually by 11.6 percent between 2002 and 2013, and coverage increased from 3.4 percent of the population to 20.4 percent.
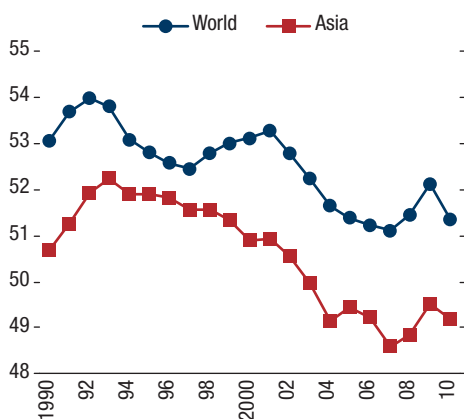
Box 4.3 Labor Share and Income Inequality

The rise in income inequality across the world has been accompanied by a decline in the average labor share. Indeed, the labor share itself can be interpreted as a measure of distribution, that is, the functional distribution of income between capital and labor. Empirical work has found that wealth, which determines capital income, is much more unequally distributed than income in most countries (Davies and others 2015) and that capital income accounts for a large portion of inequality in various countries (Garcia-Peñalosa and Orgiazzi 2013). Therefore, a higher labor share would usually suggest lower income inequality (Checchi and Garcia-Peñalosa 2010).[1]

Labor shares declined during 1990–2010 in Asia, on average, in line with global trends (Figure 4.3.1). Delving into individual country experiences suggests a more nuanced picture. For 7 out of 13 countries, the labor share decreased while the Gini coefficient increased over the same period, confirming the relationship found in the previous literature.[2] Korea, the Philippines, and Thailand have experienced rising labor shares and declining Gini coefficients, while in India and Sri Lanka this relationship seems to break down: labor shares adjusted for self-employment declined and the Gini coefficient rose, as expected (Figure 4.3.2).[3]

Drivers of the Labor Share

Drivers of the labor share have received new attention over the past decade, with globalization, technological and structural change, and the bargaining power of workers identified as key factors (Guscina 2006; IMF 2007, Chapter 5; Stockhammer 2013). Because we interpret the labor share as an additional measure of distribution, we rely on an econometric specification similar to the inequality analysis. Our empirical results (Table 4.3.1) illustrate that inflation reduces the labor share as it benefits capital income. Technology and financial openness are associated with a decline in the labor share, suggesting that technology has been capital-augmenting in most countries, elevating the relative value of capital. Financial openness allows capital to move more freely across borders, thereby boosting its bargaining power and increasing its share. By enhancing labor productivity, higher human capital has been supportive of the adoption of new technologies and the shift from agriculture to industry and services, thereby reducing the labor share. Government consumption, which is correlated with the size of the welfare state, increases the labor share by enhancing the bargaining power of workers (Stockhammer 2013). Asia does not seem to differ from other regions with regard to key policy variables.

Figure 4.3.1. World versus Asia: Total Labor Share
(Percent)

Sources: International Labour Organization; Karabarbounis and Neiman (2014); and IMF staff calculations.

The main author of this box is Johanna Schauer.

[1] In theory, these two developments are not necessarily causally connected, as the sign of their relationship depends on the inequality of wage income and capital income separately and their correlation (Atkinson 2009).

[2] We report the changes between 1990 and 2007, as the global financial crisis led to many trend reversals that might not reflect long-term developments.

[3] Over the same period the adjusted labor share declined by 13.5 percentage points for India and by 1.7 percentage points for Sri Lanka (Penn World Table Version 8.1).

Box 4.1 *(continued)*

Figure 4.3.2. Selected Asia: Labor Share
(Change during the period indicated in parentheses; percentage points)
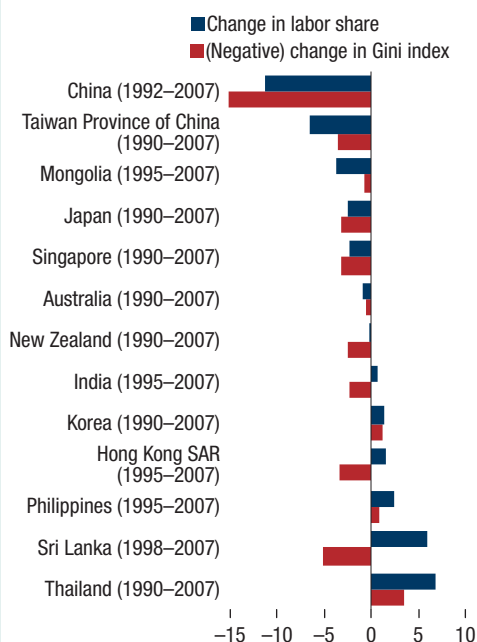
■ Change in labor share
■ (Negative) change in Gini index

Sources: International Labour Organization; Karabarbounis and Neiman (2014); and IMF staff calculations.

Table 4.3.1 Drivers of the Labor Share

Explanatory Variables	Dependent Variable: Labor Share
Growth, t–1	0.036
	(0.829)
Human Capital, t–1	−0.019***
	(−3.803)
Human Capital*Asia, t–1	0.003
	(0.072)
Trade Openness, t–1	−0.003
	(−0.443)
Financial Openness, t–1	−0.006***
	(−5.406)
Financial Deepening, t–1	0.029***
	(5.519)
Financial Deepening*Asia, t–1	−0.008
	(−0.947)
Technology, t–1	−0.559***
	(−3.550)
Government Consumption, t–1	0.262**
	(2.546)
Government Consumption*Asia, t–1	−0.249
	(−1.055)
Inflation, t–1	−0.010***
	(−3.524)
Democratic Accountability, t–1	−0.002
	(−0.983)
Share of employment in Industry, t–1	0.192***
	(4.095)
Share of employment in Employment, t–1	0.022
	(0.819)
Number of observations	673
Number of groups	60
Time dummies	YES

Source: IMF staff estimates.
Note: Driscoll-Kraay robust t-statistics in parentheses. They are robust to very general forms of cross-sectional and temporal dependence. The error structure is assumed to be heteroskedastic, autocorrelated up to two lags, and possibly correlated between the panels (countries).
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Annex 4.1 Drivers of Income Inequality

This annex presents the empirical framework and estimates of the drivers of income inequality. It builds on various studies in the empirical literature (Woo and others 2013; IMF 2014; Dabla-Norris and others 2015) to formulate the econometric strategy. The baseline model specification is as follows:

$$Inequal_{it} = \delta X_{it-1} + \mu_i + \theta_t + \varepsilon_{it}$$

where *Inequal* denotes, for each country *i* and year *t*, a measure of income distribution, with the main measure being the net Gini.[1] X_{it-1} is the vector of explanatory variables and comprises human capital, technological progress, financial openness, trade openness, financial deepening, fiscal policy, inflation, and democratic accountability.[2] The education variable, from the Penn World Table Version 8.1, captures the average years of schooling (Barro and Lee 2010). Technological progress is measured by the share of information technology capital in the total capital stock (Jorgenson and Vu 2007) and financial openness by the sum of assets and liabilities from the international investment position data over GDP. Trade openness is measured by the sum of exports and imports over GDP, financial deepening by domestic credit to the private sector as a share of GDP, fiscal policy by government consumption over GDP, and inflation by changes in the consumer price index (all from the *World Economic Outlook*). Democratic accountability (from the International Country Risk Guide data set) captures how responsive government is to its people. μ_i denote the country-specific fixed effects to control for country-specific factors, including the time-invariant component of the institutional and geographical environments. θ_t are time-fixed effects to control for global factors, and ε_{it} is an error term. All explanatory variables in the estimation are lagged by one year to reduce the risks of endogeneity due to reverse causality.

To investigate whether the drivers of inequality in Asia differ from those in other regions, with a focus on policy variables, we augment our baseline specification

with various interaction terms by combining key policy variables with Asia dummies as illustrated below:

$$Inequal_{it} = \delta X_{it-1} + \gamma Asia * Z_{it-1} + \mu_i + \theta_t + \varepsilon_{it}$$

where all variables are defined as above, and Z_{it-1} is the vector of policy variables and refers to human capital, financial deepening, and government consumption. We further zoom in on each policy issue separately and use more granular data to assess the way in which that policy affects inequality in Asia. We focus on one policy area at a time to reduce the risk of collinearity while preserving an adequate number of variables and observations for each of our estimations.

The sample covers 82 advanced and developing economies, including 17 Asian countries, during the period 1990–2013. We rely mainly on fixed-effects (FE) panel regressions, with Driscoll-Kraay standard errors for our empirical investigation. The FE with Driscoll-Kraay standard errors are robust to very general forms of cross-sectional and temporal dependence. The error structure under this estimation method is assumed to be heteroscedastic and autocorrelated up to two lags, which helps capture the persistence of income inequality across time. The error is also assumed to be correlated between countries, possibly due to common shocks, for instance those related to technology, international trade, or financial crises.

The results from the baseline regressions are broadly in line with findings in the empirical literature. In particular, fiscal policy and technological progress seem to have been the two most important drivers of the net Gini for advanced economies, while financial deepening has been associated with rising inequality in developing countries (Annex Table 4.1.1).

Analyzing whether the drivers of income inequality in Asia differ from those in other regions highlights interesting findings. While financial deepening has been associated with higher inequality in other regions, it has been an equalizing force in Asia (Annex Table 4.1.2, column 1). Further investigating the specificity of Asia illustrates that limited and poorly targeted policies may have prevented Asian economies from benefiting in terms of equalizing expenditure policies. Indeed, unlike in other regions, education, social benefits, and capital spending seem to have been associated with higher income inequality in Asia (Annex Table 4.1.2, column 2). The contribution of skill premiums to higher inequality appears to have been three times larger in Asia than elsewhere (Annex Table 4.1.3, column 3).

The main author of this annex is Tidiane Kinda.

[1]Our main results are robust with alternative measures of income inequality, such as market Gini, income share of the bottom 10 percent, income share of the top 10 percent, and the Palma ratio (See Jain-Chandra and others 2016).

[2]Our baseline regressions also control for income per capita and its squared term to test for the existence of Kuznets curves.

Annex Table 4.1.1. Drivers of Income Inequality (Baseline)

Explanatory variables	Dependent variable: Net Gini	
	Advanced economies	Developing economies
	(1)	(2)
Human Capital, t–1	−0.006	−0.048**
	(−0.953)	(−2.176)
Trade Openness, t–1	−0.010**	−0.017**
	(−2.536)	(−2.055)
Financial Openness, t–1	−0.002	0.023
	(−1.655)	(1.643)
Financial Deepening, t–1	0.003	0.054***
	(0.824)	(4.289)
Technology, t–1	0.201*	0.158
	(1.915)	(1.135)
Gov. Consumption, t–1	−0.240***	−0.054
	(−6.330)	(−1.074)
Inflation, t–1	−0.039	−0.000
	(−1.252)	(−0.305)
Democratic accountability, t–1	0.003	−0.003**
	(1.512)	(−2.412)
Observations	472	534
Number of countries	31	51
Time fixed effects	YES	YES

Source: IMF staff estimates.
Note: Driscoll-Kraay robust t-statistics in parentheses. They are robust to very general forms of cross-sectional and temporal dependence. Log of GDP per capita and its squared term, as well as country fixed effects, time fixed effects and a constant term, are included in each regression but are not reported.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Annex Table 4.1.2. Drivers of Income Inequality (Asian Specificity)

Explanatory variables	Dependent variable: Net Gini		
	Asian Specificity	Fiscal Policy	Human Capital
Human Capital, t–1	-0.045***		
	(-5.983)		
Human Capital*Asia, t–1	0.002		
	(0.078)		
Financial Deepening, t–1	0.011***		
	(4.522)		
Financial Deepening*Asia, t–1	-0.015*		
	(-1.784)		
Gov. Consumption, t–1	-0.199***		
	(-3.510)		
Gov. Consumption*Asia, t–1	0.14		
	(1.210)		
Top Corporate tax rate, t–1		-0.065***	
		(-3.464)	
Top Personnal tax rate, t–1		-0.048	
		(-1.481)	
Health Spending, t–1		0.244	
		(1.190)	
Education Spending, t–1		-0.453**	
		(-2.472)	
Social Benefits, t–1		-0.243***	
		(-6.810)	
Capital Spending, t–1		-0.228***	
		(-2.909)	
Top Corporate tax rate*Asia, t–1		-0.017	
		(-0.358)	
Top Personal tax rate*Asia, t–1		0.015	
		(0.482)	
Health Spending*Asia, t–1		-0.446	
		(-0.947)	
Education Spending*Asia, t–1		0.943*	
		(1.968)	
Social Benefits*Asia, t–1		0.680***	
		(3.890)	
Capital Spending*Asia, t–1		0.399**	
		(2.642)	
Skill Premium, t–1			0.007*
			(1.982)
Skill Premium*Asia, t–1			0.022***
			(2.998)
Primary school completion, t–1			-0.140***
			(-4.139)
Primary school completion*Asia, t–1			0.141*
			(1.787)
Secondary school enrollment, t–1			-0.006
			(-0.180)
Secondary school enrollment*Asia, t–1			-0.074
			(-0.948)
Tertiary school enrollment, t–1			0.090*
			(1.989)
Tertiary school enrollment*Asia, t–1			-0.032
			(-1.130)
Number of observations	848	519	232
Number of groups	78	56	42
Time fixed effects	YES	YES	YES

Source: IMF staff estimates.
Note: Driscoll-Kraay robust t-statistics in parentheses. They are robust to very general forms of cross-sectional and temporal dependence. All regressions control for the determinants of inequality identified in the baseline specifications. Country fixed effects, time fixed effects, and a constant term are included in each regression but are not reported.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.