


Sharing the Growth Dividend: Analysis of Inequality in Asia



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by Sonali Jain-Chandra, Tidiane Kinda, Kalpana Kochhar, Shi Piao, and Johanna Schauer

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I N T E R N A T I O N A L M O N E T A R Y F U N D

IMF Working Paper

Asia and Pacific Department

Sharing the Growth Dividend: Analysis of Inequality in Asia¹

Prepared by Sonali Jain-Chandra, Tidiane Kinda, Kalpana Kochhar, Shi Piao, and
Johanna Schauer

Authorized for distribution by Kalpana Kochhar

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Abstract

This paper focusses on income inequality in Asia, its drivers and policies to combat it. It finds that income inequality has risen in most of Asia, in contrast to many regions. While in the past, rapid growth in Asia has come with equitable distribution of the gains, more recently fast-growing Asian economies have been unable to replicate the “growth with equity” miracle. There is a growing consensus that high levels of inequality can hamper the pace and sustainability of growth. The paper argues that policies could have a substantial effect on reversing the trend of rising inequality. It is imperative to address inequality of opportunities, in particular to broaden access to education, health, and financial services. Also fiscal policy could combat rising inequality, including by expanding and broadening the coverage of social spending, improving tax progressivity, and boosting compliance. Further efforts to promote financial inclusion, while maintaining financial stability, can help.

JEL Classification Numbers: D31, D63, O15

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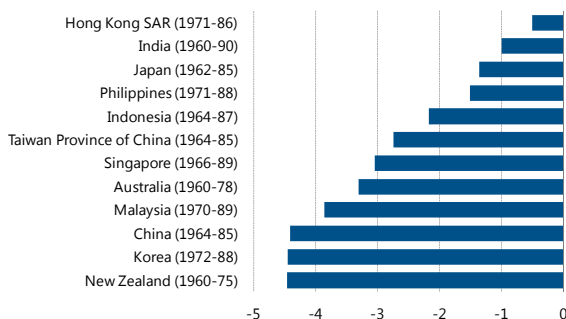
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I. INTRODUCTION

Rising inequality across the globe has attracted much attention from the public and policymakers alike. Until around 1990, Asia grew strongly and secured large gains in poverty reduction while at the same time achieved a fairly equitable society (Figure 1). A large part of this success owed to the “Miracle” countries—Hong Kong SAR, Korea, Singapore and Taiwan Province of China—where sustained rapid growth was accompanied by equitable income distributions.

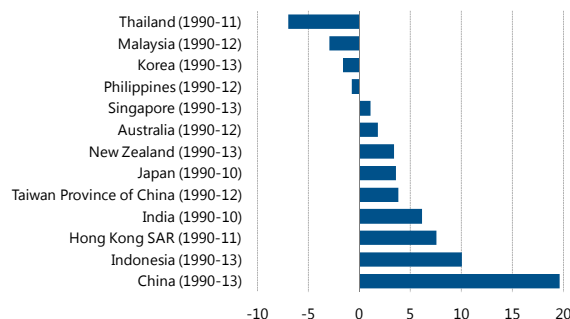
Since the early 1990s, however the region has witnessed rising income inequality, a break from its own remarkable past of equitable growth, resulting in high levels of inequality particularly in large Asian emerging markets (Figure 2). This is of concern for two reasons. First, the recent literature has found that elevated levels of inequality are harmful for the pace and sustainability of growth. In particular, high levels of income inequality can lead to sub-optimal investment in health and education, which weighs on growth. Also widening inequality can weaken the support for growth-enhancing reforms and may spur governments to adopt populist policies and increase the risk of political instability. 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 to Asia’s past. In addition to income inequality, Asia, in line with other regions, faces considerable inequality in opportunities.

Figure 1: Selected Asia: Income Inequality, Pre-1990
(Net Gini Index; in Gini points; change during the period indicated in parentheses)



Sources: SWIID Version 5.0; and IMF staff calculations.

Figure 2: Selected Asia: Income Inequality, 1990-Latest
(Net Gini Index; in Gini points; change during the period indicated in parentheses)



Sources: SWIID Version 5.0; and IMF staff calculations.

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 paper 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, including at the IMF, on the evolution and drivers of income inequality. The goal is to document the developments in various measures of income inequality as well as 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 paper is organized as follows. Section II provides a literature survey covering the impact of high inequality on the economy. Section III discusses data issues and Section IV illustrates the stylized facts on the evolution of inequality in Asia and the extent to which growth has been inclusive in Asia. Section V provides the empirical framework and the results. Section VI explores the development of specific countries and Section VII discusses the policy implications.

II. LITERATURE REVIEW

Impact of Inequality on the Macroeconomy. While the recent literature finds that inequality hampers growth, some early empirical work found a positive or non-linear effect of inequality on growth (Forbes, 2000; Banerjee and Duflo, 2003). Inequality was seen as necessary to spur growth by providing incentives (Lazear and Rosen, 1981), increasing investment (Kaldor, 1957), and allowing the accumulation of a minimum of assets necessary for entrepreneurial activities and education (Barro, 2000).

However, beyond violating many people's concept of social justice, recent research has uncovered various negative effects of inequality on economic growth, putting it at the forefront of policy and research agendas. Recent empirical work has found a negative relationship between inequality and growth (e.g., Easterly, 2007; Berg and Ostry, 2011; Berg and others, 2012; Ostry and others, 2014; Dabla-Norris and others, 2015a). Berg and Ostry (2011) find that sustained growth spells are robustly associated with less income inequality. They find that a 10-percentile decrease in inequality increases the length of a growth spell by 50 percent. Dabla-Norris and others (2015a) find that the distribution of income itself matters for growth. If the income share of the top quintile increases, then GDP growth declines over the medium term, while an increase in the income share of the bottom quintile is associated with higher growth.

A plethora of mechanisms has been put forth, through which inequality can negatively impact growth and stability. These include:

- The political economy channel, which encompasses various explanations such as higher inequality causing the rich to block growth-enhancing redistributionary policies (e.g., Persson and Tabellini, 1994; Alesina and Rodrik, 1994) or the poor to demand higher distortionary taxation (e.g., Bourguignon and Verdier, 2000; Benabou, 2002; Galor and others, 2009). Additionally, inequality can increase political instability, thereby lowering investment and growth and hampering a country's ability to react to shocks (e.g., Benhabib and Rustichini, 1996; Perotti, 1996; Rodrik, 1999).
- The credit constraints channel, in which inequality hampers growth in the presence of credit constraints causing underinvestment in human capital and health (e.g., Galor and Zeira, 1993; Aghion and others, 1999; Galor and Moav, 2004) and entrepreneurial activity (Banerjee and Newman, 1993) as well as the misallocation of

talent over occupations (e.g., Owen and Weil, 1998; Maoz and Moav, 1999; Hassler and others, 2007).

- More recently, inequality has also been cited as a potential cause for economic and financial instability and crises. It has been suggested that inequality might have caused the financial crisis through political pressure for subsidized housing finance (Rajan, 2010), increased influence of specific lobbies (Stiglitz, 2012), and the development of a savings glut (Kumhof and others, 2015). Additionally, Kumhof and others (2012) find that higher top income shares are associated with substantially larger external deficits.

Evolution of Inequality. Recent studies have made use of new and improved data to illustrate a clear trend of increasing inequality for most rich and middle-income countries in the last three decades (Morelli and others, 2015; OECD, 2015). Moreover, new data have allowed the identification of the role of top income shares in driving income inequality (Piketty and Saez, 2003; Atkinson and others, 2011). For developing countries the picture is more mixed, with inequality on average increasing in the 1980s and 1990s and declining in the 2000s (Alvaredo and Gasparini, 2015). However, this overall development masks divergent trends for different regions.

Asia in particular has seen increases in inequality since 1990 (Balakrishnan and others, 2013; Dabla-Norris and others, 2015a). Zhuang and others (2014) have analyzed inequality for Asian countries in more detail finding that 12 out of 30 countries experienced an increase during the last two decades, and the development being driven by increases in the top income shares. Various other papers have analyzed the development in individual Asian countries (e.g., Chaudhuri and Ravallion, 2006; Piketty and Qian, 2009; Kim and Kim, 2014). This paper contributes to this literature by using various aggregated databases (SWIID, PovcalNet, WWID) to describe current levels and recent trends of income and consumption inequality in Asia, adding additional analysis as well as insight into trends of specific countries.

Additionally, the literature has differentiated among types of inequality—market and structural (Easterly, 2007), opportunities and outcomes (World Bank, 2005), good and bad (Chaudhuri and Ravallion, 2006)—acknowledging its role to uphold incentives for efficiency, innovation, and entrepreneurship (Lazear and Rosen, 1981). Thus, inequality can itself be an outcome of competition and innovation (Aghion and others, 2015). This literature implies that it is crucial to go beyond monetary inequality and look at the prevailing inequalities in opportunities. This has been done for subsets of Asian countries (Son, 2014) as well as individual countries (e.g., Zhang and Kanbur, 2005; Tandon and Zhuang, 2007; Asadullah and Yalonetzky, 2011). We make use of various new sources of data that allow us to compare a broader set of Asian countries along various dimensions of inequality of opportunity.

Drivers of inequality. Theory has suggested many drivers of inequality, which empirical research has aimed at testing using various methods. Recent cross-country studies have confirmed various drivers put forth by economic theory (Milanovic, 2005; OECD, 2011; Dabla-Norris and others, 2015a). Further research focuses on particular drivers to allow more detailed conclusions (e.g., globalization: Jaumotte and others, 2013; labor markets: Jaumotte

and Osorio Buitron, 2015; fiscal policy: Woo and others, 2013; financial development: Claessens and Perotti, 2007, and Demirgüç-Kunt and Levine, 2009). In this literature, greater financial openness and technology are usually found to increase inequality, while strengthened labor market institutions, higher government spending and educational attainment have an equalizing effect. The results are less clear-cut for the effects of trade openness and financial deepening.

The study of specific drivers of inequality in Asia has received less attention. The most comprehensive analysis has been done by Zhuang and others (2014). Using micro data for inequality decompositions, the authors argue that technological progress, globalization, and market-oriented reform have driven rising inequality in Asia through capital, skill, and spatial biases. Claus and others (2014) concentrate on the role of fiscal policies in Asian countries using cross-country regressions. They find that the main differences between Asia and the rest of the world arise from the effect of social protection and housing. Balakrishnan and others (2013) look at the drivers of inclusive growth in Asia identifying education, increasing labor share of total income and financial reform as having a positive effect. Aoyagi and Ganelli (2015) do the same and find that fiscal redistribution, monetary policy aimed at macro stability, and structural reforms to stimulate trade, reduce unemployment and increase productivity are important determinants of inclusive growth in Asia. More prevalent are studies looking at subsets of or individual Asian countries (e.g., Cain and others, 2014; Li and others, 2014; Chongvilaivan, 2014) and those analyzing particular drivers, such as education and the skill premium (e.g., di Gropello and Sakellariou, 2010; Mehta and others, 2013), infrastructure (Seneviratne and Sun, 2013), rural-urban differences (e.g., Kanbur and Zhuang, 2014) or trade and outsourcing (Hsieh and Woo, 2005). This paper contributes to this literature by using cross-country regressions to analyze the main drivers for increased inequality in Asia. Moreover, we delve further into specific issues by using more disaggregated and precise variables to evaluate the impact of specific policies.

III. DATA ISSUES

While inequality encompasses many different dimensions, this paper focuses primarily on inequality in income or consumption and uses data derived from national household surveys. Any analysis of inequality—and this paper is no exception—is confronted with a number of challenges as cross-country comparisons are highly challenging. First, some national statistical offices collect data on household income and others compile statistics on consumption expenditure. The latter is true for most low- and middle-income countries in Asia, while the high-income countries tend to report income inequality measures. Second, major differences 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. Due to these constraints, we work with two main data sources which aim to aggregate data in a consistent manner but still cover a broad set of countries.

For most of our data analysis we focus on the Gini coefficient as our unit of analysis, which we obtain from the Standardized World Income Inequality Database (SWIID Version 5.0) assembled by Frederik Solt. This dataset aims to combine two major aspects crucial for our analysis—“maximizing the comparability of income inequality data while maintaining the

widest possible coverage across countries and over time.”² It reports Gini coefficients for 174 countries from 1960 to the present. Solt uses the Luxembourg Income Study as its standard, as it is based on income surveys only and aims to achieve the highest level of harmonization. Further values are generated using model-based imputation using various supplementary data sources.³ Still, major issues remain and Solt accounts for this by providing standard deviations of the imputations and a pre-formatted dataset, which allows us to account for the uncertainty of estimates in our cross-country regressions.

In our analysis of trends we also make use of the PovcalNet database from the World Bank as it gives more detailed information on the national distributions of inequality. It constructs mean income and shares in the distribution by decile from national household surveys. Covering 126 countries from 1979 to 2012, it is also being used to calculate the official estimates of global poverty. No adjustments for comparability have been undertaken, but it is specified whether the measure is based on consumption or income data. Thus, one needs to be aware of these shortcomings when looking at aggregations from this source. Overall, consumption inequality tends to be lower than income inequality (Alvaredo and Gasparini, 2015).

IV. STYLIZED FACTS

A. Evolution of Income Inequality in Asia

Asia has been a growth leader in the world and has achieved remarkably high growth for sustained periods. From 1990–15, the region grew at around 6 percent per annum, notwithstanding the sharp slowdowns during the Asian Financial Crisis and the Global Financial Crisis. At the same time, during this period, large gains were achieved in poverty alleviation. The poverty rate has fallen from 55 percent in 1990 to 21 percent in 2010, driven in large part by China and India.⁴

However, this impressive economic performance has been accompanied by rising inequality in a number of Asian economies. The average level of the Gini coefficient is now higher in Asia than for the rest of the world. Furthermore, apart from Asia and OECD countries, inequality has been trending down in all other regions. The average Gini coefficient (net of transfers and taxes) has risen from 36 in 1990 to 40 in 2013 in Asia. Over the same time period, the average Gini for the rest of the world has risen less by only two Gini points (Figure 3). More strikingly, on a population-weighted basis, the net Gini in Asia rose from

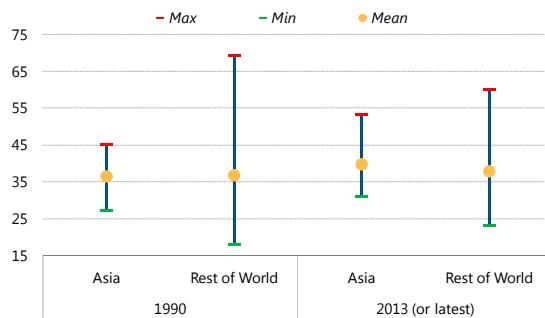
² Solt (2009) reports that the SWIID covers double that of the next largest income inequality data set, and its record of comparability is three to eight times higher than those of alternate data sets.

³ These include United Nations University’s World Income Inequality Database, the OECD Income Distribution Database, the Socio-Economic Database for Latin America and the Caribbean generated by CEDLAS and the World Bank, Eurostat, the World Bank’s PovcalNet, the UN Economic Commission for Latin America and the Caribbean, the World Top Incomes Database, the University of Texas Inequality Project, national statistical offices around the world, and academic studies.

⁴ Here, the poverty rate is defined as \$1.25/person/day, which is conventionally used in global poverty analysis. The dollar amount is in terms of purchasing power parity (ppp) as of 2005.

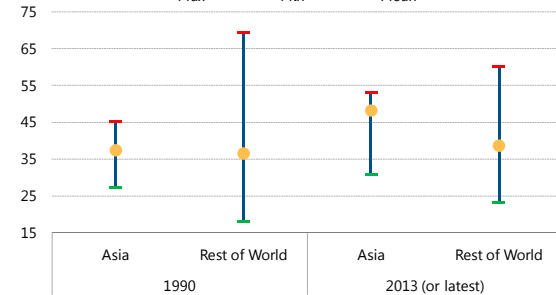
37 in 1990 to 48 in 2014, reflecting the sharp rise in inequality in the most populous countries (Figure 4). While these changes may appear small, inequality and especially the Gini measure are very persistent over time.⁵ On average the within-country standard deviation in this sample is only 2.5 points. 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 (Figure 5 and Figure 6).

Figure 3: World and Asia: Income Inequality
(Net Gini Index; in Gini points; average across the region)



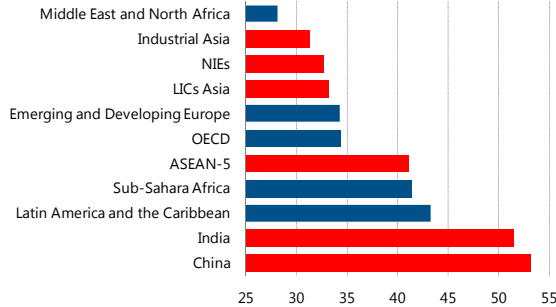
Sources: SWIID Version 5.0; and IMF staff calculations.

Figure 4: World and Asia: Population weighted Income Inequality
(Net Gini Index; in Gini points; population weighted average across the region)



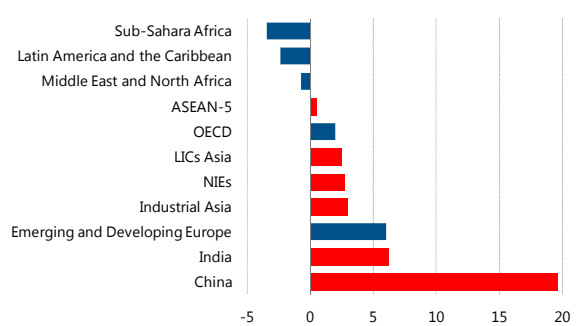
Sources: SWIID Version 5.0; World Bank, WDI database; and IMF staff calculations.

Figure 5: Regional Comparison: Income Inequality
(Net Gini Index; in Gini points; year of 2013; population-weighted average across the region)



Sources: SWIID Version 5.0; IMF, WEO database; and IMF staff calculations.

Figure 6: Regional Comparison: Income Inequality
(Net Gini Index; in Gini points; change since 1990; average across the region)

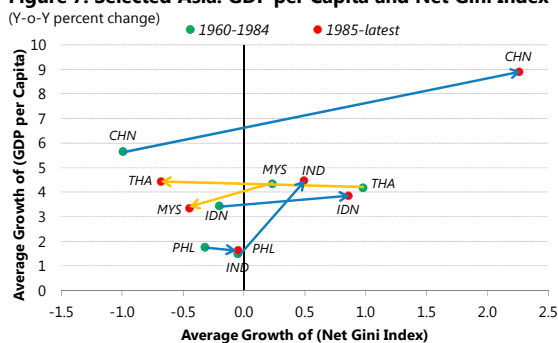


Sources: SWIID Version 5.0; IMF, WEO database; and IMF staff calculations.

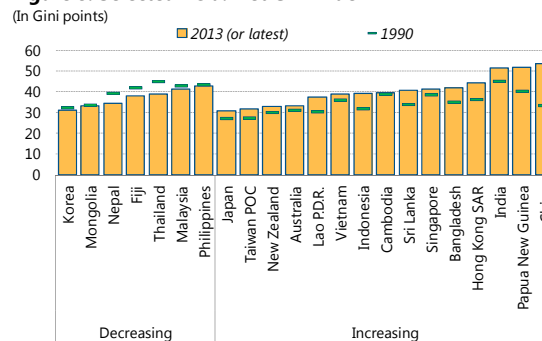
Rising inequality in Asia is in contrast to its own remarkable past record of equitable growth. Pre-1990, Asian economies grew fast but were also able to reduce inequality, leading to growth that was inclusive. Since then, however, the region has been unable to replicate the “growth with equity miracle,” as inequality has risen (Figure 7). While impressive poverty reduction has been achieved, poverty rates would have been even lower had inequality not risen.

Of the 22 Asian economies analyzed for which sufficient data are available, income inequality, as measured by the net Gini coefficient, rose in 15 countries from 1990 to 2013 (Figure 8). Importantly, it increased sharply in the economies with the largest populations including China, India, and Indonesia. Country specific trends are described below:

⁵ See Li and others (1998) for a discussion.

Figure 7: Selected Asia: GDP per Capita and Net Gini Index

Sources: SWIID Version 5.0; IMF WEO database; and IMF staff calculations.

Figure 8: Selected Asia: Net Gini Index

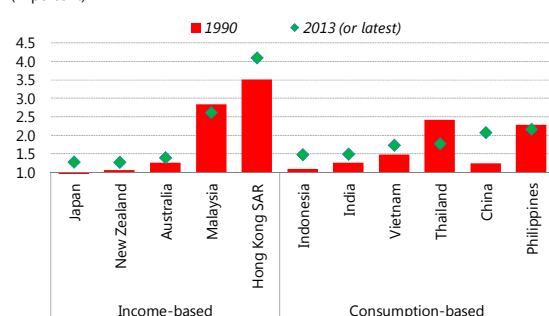
Sources: SWIID Version 5.0; and IMF staff calculations.

- In **China**, the Gini coefficient rose the most from 33 in 1990 to 53 in 2013. From being one of the most equitable economies in 1990, inequality in China is now higher than in most other regions. There is also a large difference between urban and rural areas within China, with inequality in urban areas rising more sharply (See section VI.A). Combating this rising inequality is one of the policy priorities of the government's Thirteenth Five Year Plan.
- In **India**, income inequality, as measured by the Gini coefficient, has also been on the rise. In 1990, inequality in India was higher than China, with a net Gini of around 45. By 2013, the net Gini in India had increased to 51, also higher than that seen in other regions. As in China, inequality in India has been rising more sharply in urban areas as the income shares of the top decile in urban areas have risen significantly more (See section VI A).
- In **Korea**, the Gini coefficient suggests a small decrease in inequality from 32 in 1990 to 31 in 2013. However, this strikingly contrasts with a large increase in the income share of the top 10 percent by 16 percentage points (Figure 12) and recent studies finding declines in social mobility. This development has been attributed to rapid aging, large wage gaps for regular and non-regular workers and gender occupational inequality.
- In **Japan**, the Gini coefficient, albeit being the lowest in the region, has risen from 27 in 1990 to 31 in 2010. The share of the top 10 percent also increased, but less so than in Korea, by 7 percentage points. Similar to Korea, key drivers of this trend are aging, low female labor participation and increasing labor market duality (Aoyagi and others, 2015). According to Aoyagi and Ganelli (2013), the share of non-regular workers increased from below 20 percent before the burst of the bubble in the early 1990s to 35 percent in 2011. Moreover, 70 percent of non-regular workers are women.
- Among the **ASEAN emerging markets**, inequality trends have diverged, with inequality rising in Indonesia and falling in Thailand, Malaysia, and the Philippines, in part due to policy efforts (see section VI.B).

- **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.

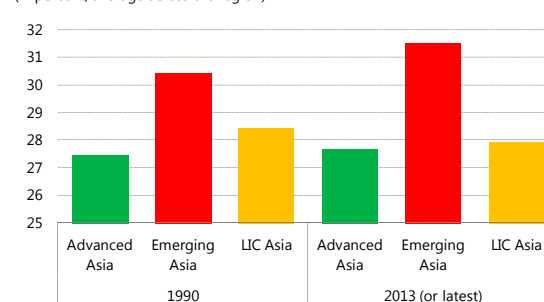
Next, we delve into the entire income distribution and analyze the shifts in income shares driving the rising Gini coefficients.⁶ The Palma ratio complements the Gini measure by focusing on the ratio of the top 10 percent to the bottom 40 percent making it more sensitive to changes in the tails of the distribution.⁷ For Asia it coincides with the developments in the Gini coefficient, as Malaysia, the Philippines, and Thailand are shown to achieve more equitable income distributions, while the remaining countries have become more inequitable (Figure 9).

Figure 9: Selected Asia: Palma Ratio
(In percent)



Sources: World Bank, PovcalNet database; WWID; and IMF staff calculations.

Figure 10: Asia: Top 10 Income Share
(In percent; average across the region)



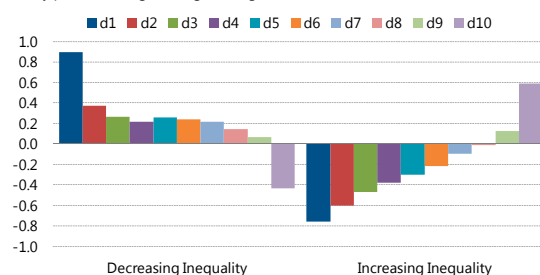
Sources: World Bank, PovcalNet database; and IMF staff calculations.

Rising inequality has also been driven by increases in the 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 around 28 percent in advanced Asia, compared to 30 and 27 percent of the income share, respectively, in 1990 (Figure 10). The dynamics of the income shares reveal that in the countries where inequality increased on average, the bottom 70 of the population reduced their share of the pie, while the top decile of the income distribution incurred large gains in income share (Figure 11). This is consistent with developments in OECD economies, in which the income gains of the top decile (and in the case of the United States, the top 1 percent) drove rising inequality.

⁶ Note that income distribution can also refer to consumption distributions, depending on which is available for the country.

⁷ It has been developed based on Gabriel Palma's (2006, 2011) observation that the share of the 5th to the 9th decile has been very stable. See Cobham and Sumner (2013) for more detail.

Figure 11: Selected Asia: Growth of Income Share by Decile
(Y-o-y percent change; change during 1990-2010)

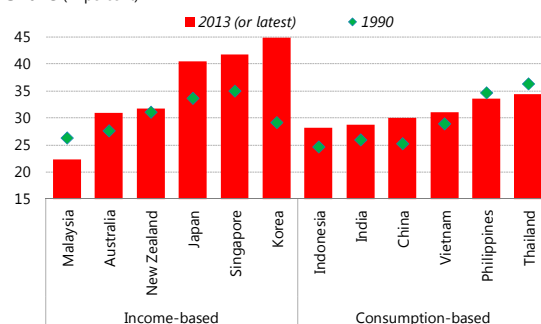


Sources: World Bank, PovcalNet database; Wider; and IMF staff calculations.

Note: Decreasing group includes Fiji, Korea, Malaysia, Nepal, Philippines, and Thailand; Increasing group includes Bangladesh, China, India, Indonesia, Lao P.D.R., New Zealand, Sri Lanka and Vietnam.

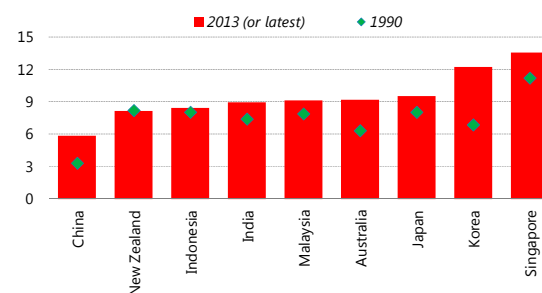
Figure 12 provides the shares of the top 10 percent for Asian countries.⁸ Over the last two decades they increased in most of the countries, with Malaysia, the Philippines, and Thailand being an exception. Korea shows a surprisingly large increase by 16 percentage points since 1995 and records the highest level among the available countries with the top 10 percent earning 45 percent (Figure 12). This development is, however, not reflected in the Gini. The top 1 percent saw an average increase of 2.2 percent, with the exception of Indonesia.^{9, 10} While the share increased most for Korea by 5 percentage points, Singapore still records the highest level with a share of 14 percent of income going to the top 1 percent in 2012 (Figure 13).

Figure 12: Selected Asia: Top 10 Income/Consumption Share (In percent)



Sources: World Bank, PovcalNet database; WWID; and IMF staff calculations.

Figure 13: Selected Asia: Top 1 Income Share (In percent)



Sources: World Wealth and Income Database (WWID); and IMF staff calculations.

⁸ For this we combine data from PovcalNet and the World Wealth and Income Database (WWID). The WWID is the preferred source as it reports the share of top incomes and relies on tax income data. China is an exception, for which household surveys are used.

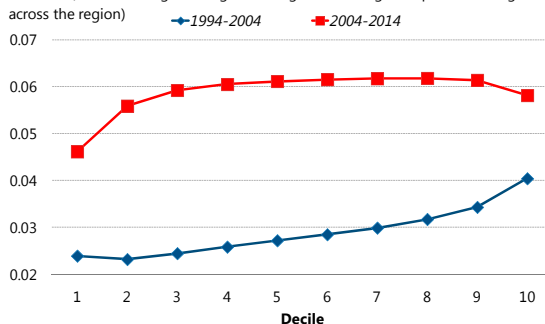
⁹ This data is only reported by the WWID and thus only available for few countries.

¹⁰ Chinese data is only available until 2003, Indonesian data until 2004, and Indian data until 1999. The increase might thus be stronger for more recent years.

B. Inclusiveness of Growth in Asia

The previous analysis has focused exclusively on inequality. In this section we examine the extent Asia's impressive growth performance has benefited different parts of the population. We use growth incidence curves to answer this question. These depict the annualized growth rate of mean income or consumption for every decile of the income distribution between two points in time. They show that for Asia, growth on average has been higher over 2004–14 compared to the previous decade for all deciles of the distribution. However, growth for the bottom decile was considerably below the rest of the income distribution (Figure 14).

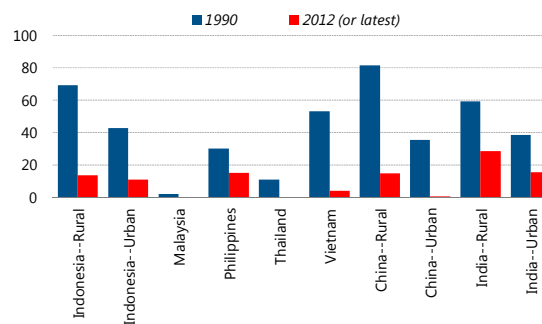
Figure 14: Asia: Growth in Mean Income/Consumption by Decile (Percent change; average annual growth during each period; average across the region)



Sources: World Bank, PovcalNet database; Wider; and IMF staff calculations.

Figure 15: Poverty in Asia

(\$2 a day in 2011 PPP; in percent of total population)



Source: World Bank, PovcalNet database.

Asia did succeed at reducing the share of people living in poverty (i.e., below \$2 a day) immensely over the last two decades, with rural China achieving the largest gains in poverty reduction and decreasing the headcount ratio by 67 percentage points from 1990 to 2012 (Figure 15). We relied on the decomposition method by Datt and Ravallion (1992) to disentangle the pure growth effect on poverty reduction from the redistributive 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. The analysis for Asia shows clearly that poverty reduction can exclusively be attributed to growth and has been achieved despite countervailing redistributive effects for most countries (Figure 16).

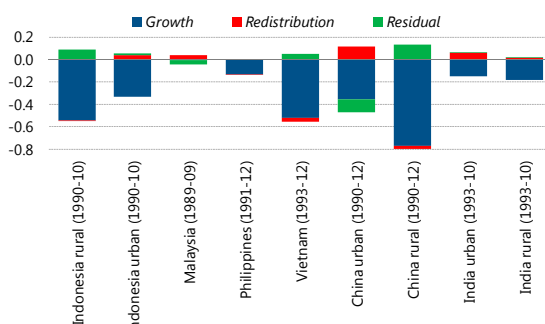
However, while growth has succeeded in alleviating poverty, it has been much less successful in building a middle class. Defining the middle class as consuming between US\$10 and US\$20 a day (PPP 2011),¹¹ illustrates that much less progress has been made across Asia (Figure 17). This suggests that while large parts of the population managed to escape extreme poverty they might have gotten stuck in a low- (and vulnerable) income level. China saw large gains, increasing its middle class by 33 percentage points, but this only holds for urban areas and not in rural regions. Thailand has also made significant progress in building a middle class, while Malaysia already had a sizeable middle class.¹²

¹¹ We follow the Pew Research Center with this definition.

¹² However, this could be due to the Malaysian data being based on income measures. Malaysia is the only country in this analysis with income data. For the other countries, the analysis refers to consumption data.

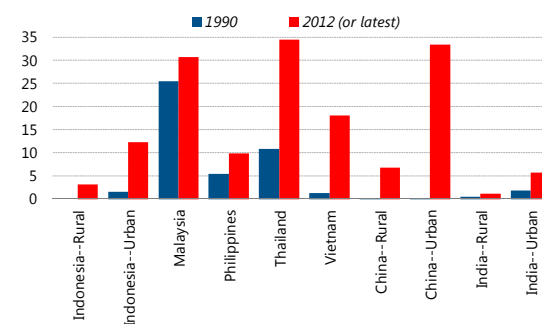
India and Indonesia have struggled the most in lifting their population toward higher and more sustainable income levels.

Figure 16: Decomposition of Changes in Headcount Ratio
(\$2 a day in 2011 PPP)



Sources: World Bank, PovcalNet database; and IMF staff calculations.

Figure 17: Middle Class in Asia
(\$10-\$20 a day in 2011 PPP; in percent of total population)



Source: World Bank, PovcalNet database.

C. Inequality of Opportunities in Asia

In addition to inequality of outcomes such as income and wealth, Asia also faces considerable inequality of opportunities. These are fundamentally of even greater concern as they sow the seeds for wider income inequality in the future and delink economic outcomes from an individual's efforts. This section discusses the evolution of various aspects of inequality of opportunities, including access to health, education, and financial services. Furthermore, certain aspects of the labor market, particularly informality and duality, may also impede the access to well-paid and secure jobs and incomes.

Education. There is a large gap between the educational attainments of the wealthiest quintile of the income distribution compared to the poorest quintile. As shown in Figure 18, 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 South Asia, Lao P.D.R., and Cambodia among other countries. It appears that such a gap in educational attainment does not exist in China. However, looking at upper secondary completion rates points to a rural-urban gap of 39 percentage points (see section VI.A).¹³ The poor find it challenging to spend on education and invest in human capital and thereby are likely to get trapped in a cycle of poverty. The policy implication would suggest greater public investment in providing basic education as well as enhancing incentives for boosting school attendance from the demand side, including cash transfers conditional on school attendance (used successfully in Latin America including Brazil).

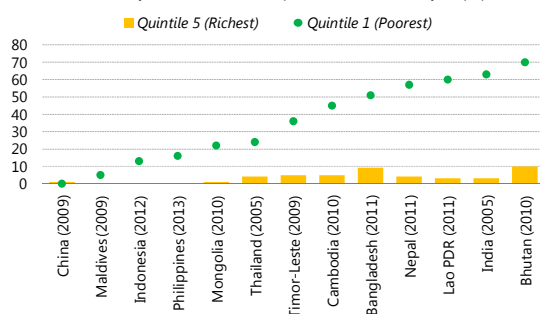
Health. There is also a significant gap in the access to healthcare between high- and low-income households, in particular in developing countries. This inequality of opportunity and access can worsen health outcomes, hampering productivity and perpetuating income inequality. Figure 19 shows the coverage of reproductive, maternal, newborn, and child

¹³ The upper secondary completion rate for 20–29 year olds in 2009 was 31 percent in rural areas and 70 percent in urban regions (WIDE).

health interventions by wealth quintile, and illustrates that there is a large difference in health coverage of poor and rich individuals, particularly in South Asia.

Figure 18: Education by Wealth Quintile

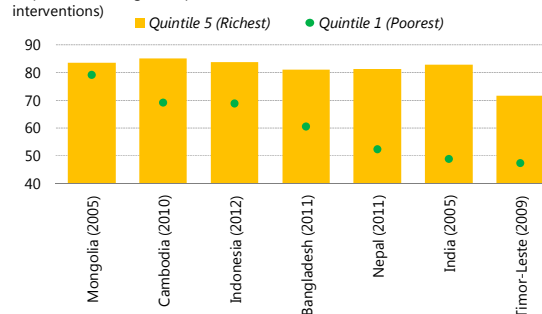
(Attained less than 4 years of education; in percent of total 20-24 year population)



Source: World Inequality Database on Education (WIDE).

Figure 19: Health by Wealth Quintile

(In percent; coverage of reproductive, maternal, newborn and child health interventions)

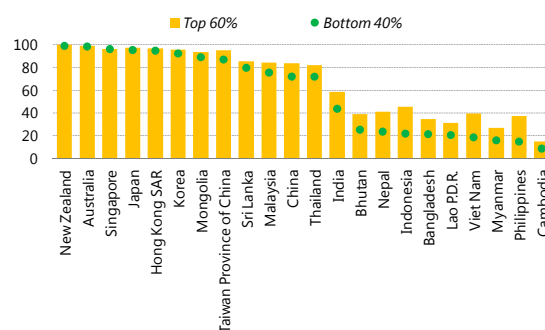


Source: World Health Organization, Health Equity Monitor database.

Financial Services. The lack of adequate financial services constrains the ability of people, particularly low-income individuals, to borrow for investment purposes and to finance education spending. It can thereby create and perpetuate income inequality. There are large disparities in financial access across the income distribution. Figure 20 shows that the share of adults with a bank account is much higher in the top 60 percent of the income distribution, compared to the bottom 40 percent. This is true in a number of Asian economies, including India, Indonesia, Vietnam, the Philippines, as well as low-income countries.

Figure 20: Financial Services by Income Share

(Accounts at a financial institution; in percent of total 15+ population; year of 2014)



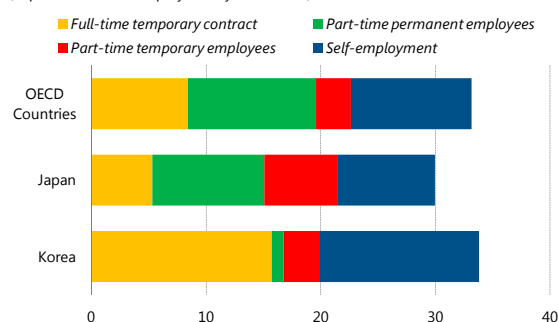
Source: World Bank, Global Findex database.

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 Korea and Japan, the duality between regular and non-regular employment has been a key driver of inequality, with non-regular employment constituting around one third of the labor force (as of 2013) (Figure 21). While duality can keep unemployment low, non-regular 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 and Ganelli, 2013; Dao and others, 2014; Aoyagi and others, 2015).¹⁴ In developing countries, informality is the biggest driver of dual labor markets and economies, with the share of informality in non-agricultural employment being as high as 70 percent or more in India, Indonesia, and the Philippines (Figure 22).¹⁵ Additionally, gaps in female labor force participation are a concern for both groups of countries and can perpetuate income inequality (Gonzalez and others, 2015).

Figure 21: Non-Standard Employment by Type

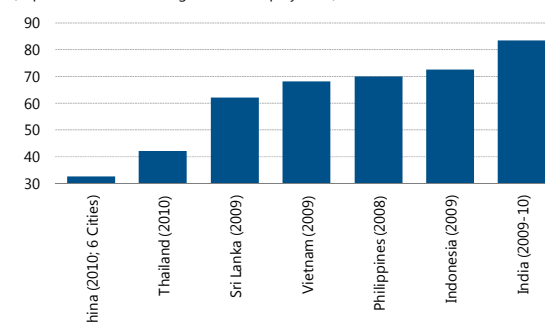
(In percent of total employment; year of 2013)



Source: Organisation for Economic Co-operation and Development (OECD).

Figure 22: Non-Agricultural Informal Employment

(In percent of total non-agricultural employment)



Source: International Labour Organization (ILO).

V. DRIVERS OF INEQUALITY

A. Empirical Framework

This section uses annual data for 82 countries during the period 1990–2013 to present evidence and shed further light on the determinants of income inequality, with a particular focus on Asia.¹⁶ It builds on various studies in the empirical literature to formulate the econometric strategy (e.g., Woo and others, 2013; Dabla-Noris and others, 2015a). The baseline specification, which forms the basis of our empirical strategy, controls for standard determinants of inequality such as education, trade openness, and technological progress.

We mainly rely 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 heteroskedastic 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. Estimations using FE may be subject to

¹⁴ The probability of moving from a non-regular to a regular job in Japan has been estimated to be much lower than for comparable countries at 1.7 and 10.3 percent (Kosugi, 2010; Genda, 2010), compared to the U.K. with 30 percent (Booth and others, 2002) and Germany with 45 percent (Hohendanner, 2010).

¹⁵ See section VI.A for details on informality in India.

¹⁶ The sample covers advanced and developing economies and includes 17 Asian countries.

endogeneity, calling for caution when interpreting the causal relationship between inequality and its determinants. In addition to the FE with Driscoll-Kraay standard errors, we test the robustness of our results with two further estimation methods: (i) the generalized method of moments (GMM) in first difference, which includes the lagged Gini as a dependent variable and controls for potential endogeneity by instrumenting all explanatory variables; and (ii) 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 (Appendix B).

We estimate the following baseline equation:

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

Where *inequal* denotes for each country *i* and year *t*, a measure of income distribution such as net Gini, market Gini, income share of the bottom 10 percent, and income share of the top 10 percent. As the Gini is over-sensitive to changes in the middle of the distribution and less sensitive to changes at the top and the bottom, we also rely on the Palma ratio, the ratio of the income share of the top 10 percent to that of the bottom 40 percent as an alternative measure of income inequality. This ratio also has the advantage of being a good summary of distributional policies because households between the fifth and the ninth decile tend to have a relatively stable share of national income across countries and over time (Palma, 2006, 2011). 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.¹⁷ X_{it-1} is the vector of explanatory variables and includes the following variables:

Education. This variable is from the Penn World Tables and captures the human capital stock (in the baseline regressions). It is based on data of average years of schooling by Barro and Lee (2010), which is interpolated for annual data and adjusted to account for higher returns to education for earlier years (Inklaar and Timmer, 2013). While many empirical studies have illustrated a negative impact of education on inequality (De Gregorio and Lee, 2002 and references therein), the theoretical relationship remains ambiguous because of two possible conflicting effects (Knight and Sabot, 1983): (i) the “composition” effect predicts a u-shape relationship with an increase in educational attainment causing initially higher inequality which then reverses at a certain point as the group of high skilled expands; (ii) the “wage compression” effect lowers the skill premium and income inequality as the relative supply of educated workers increases. Because our variable of education puts a larger weight on basic education, which is more widespread across countries, we expect a negative relationship between education and inequality.

Trade Openness is captured by the sum of exports and imports over GDP. The standard Stolper-Samuelson theorem predicts that trade openness would affect income distribution

¹⁷ Because many factors such as education and access to finance tend to also have a long-run effect on income inequality, our estimations only capture the short-run effect and should therefore be considered as lower bound estimates.

differently depending on countries' relative factor endowments. Developed countries, with their relatively larger endowment in capital, would experience a rise in the relative return to capital and greater income inequality. In contrast, developing countries, with larger endowment in labor, would experience lower income inequality (Stolper and Samuelson, 1941). The empirical literature has however been inconclusive, leading to various extensions of the theoretical predictions (Milanovic and Squire, 2007). For example, outsourcing might concern a relatively low-skill intensive industry for advanced economies but register as high-skilled for low-income countries, increasing income inequality in advanced and developing countries (Feenstra and Hanson, 1996, 1997). Increased competition (Birdsall, 1998), incentives to up-skill (Blanchard and Giavazzi, 2003), and specialization (Francois and Nelson, 2003) have been proposed as channels decreasing inequality.

Technological Progress measured by the share of information technology capital in the total capital stock is a proxy for skill-biased technological progress (Jorgenson and Vu, 2011). The majority of the literature considers advances in technology to lead to higher inequality. This is based on the notion of skill-biased technological change, where innovations increase the returns to education and/or replace unskilled labor (Acemoglu, 1999; Autor and others, 2003). However, it has been pointed out that this channel cannot account for other dimensions of inequality, such as gender and racial gaps (Card and DiNardo, 2002). Various studies also pointed out the tight relationship between trade and technology, noting that each of them can induce the other (e.g., OECD, 2011; Jaumotte and others, 2013).

Financial Openness is measured by the sum of assets and liabilities from the International Investment Position (IIP) data over GDP. Basic theory suggests a similar effect to that of trade in the Heckscher Ohlin model, with advanced countries experiencing higher inequality and developed countries an equalizing effect. However, low-skill intensive outward FDI could at the same time be high-skill intensive for the developing country, causing higher inequality instead (Feenstra and Hanson, 2003; Lee and Vivarelli, 2006). Also, capital is often assumed to be more complementary with skilled labor and might even be a substitute for unskilled workers (Cragg and Epelbaum, 1996). Under this premise, capital inflows would increase the skill premium and thereby wage inequality (Larrain, 2015). If foreign direct investment brings about skill-biased technological change, FDI might first lead to an increase in inequality, with a subsequent reversal as domestic firms upgrade (Figini and Goerg, 2006). Additionally, international financial liberalization might increase the likelihood of a financial crisis, which could disproportionately hurt the poor (Aktinson and Morelli, 2011; Agnello and Sousa, 2012).

Financial Deepening is captured by domestic credit to private sector as a share of GDP. Various theories explaining the link between financial development and inequality have been put forward. On the one hand, financial services can expand at the extensive margin increasing inclusion of marginalized groups, and allowing them to invest more adequately in human and physical capital. This would tend to reduce inequality (Becker and Tomes, 1979; Banerjee and Newman, 1993). On the other hand, financial deepening could transpire at the intensive margin, expanding financial services for those who already enjoy access. As these tend to be established firms and high-income individuals it would worsen income inequality (Claessens and Perotti, 2007). Other work combines these two effects, suggesting a threshold

after which financial development lowers inequality (Greenwood and Jovanovic, 1990). This has also been found in recent work by Dabla-Norris and others (2015a), which suggests a Kuznets curve effect for financial access and financial depth.

Fiscal Policy captured by government consumption over GDP as a first approximation in the baseline regressions is expected to lower income inequality if well targeted. The composition of fiscal policy determines much of its effect on income inequality (see section V.B.). While spending on health, education, infrastructure investment, and social insurance provision should decrease inequality (Gradstein and Justman, 1997; Benabou, 2000, 2002), it crucially depends on its coverage and targeting (Alesina, 1998; Davoodi and others, 2003; Rhee and others, 2014). Furthermore, second round effects may exist, offsetting the equalizing effect through higher market inequality (Chu and others, 2000). Greater progressivity in taxation is expected to lower inequality. Direct taxes (e.g., personal income tax, and to a lesser extent corporate income tax) are found to equalize the income distribution, while indirect taxes (including consumption taxes and custom duties) tend to increase inequality.

Inflation. Inflation (measured by changes in consumer price index) tends to be more detrimental to the poor through various channels. First, wages have been thought to lag inflation, thereby shifting income from wage earners to profits and increasing inequality (Laidler and Parkin, 1975; Fischer and Modigliani, 1978). Additionally, as the fraction of household wealth held in liquid assets, such as currency, decreases with income and wealth, inflation tends to cause a wealth transfer from the poorest to the richest (Erosa and Ventura, 2002; Albanesi, 2007), thereby increasing inequality.

Democratic Accountability. This variable from the International Country Risk Group dataset captures how responsive government is to its people with a higher score given to greater responsiveness. Standard models see an equalizing effect in increased democratization, as the median voter shifts towards the poorer part of the population, increasing redistribution through taxes or public goods (Meltzer and Richard, 1981; Lizzeri and Persico, 2004; Acemoglu and others, 2012). Furthermore, powerful elites might be interested in delaying structural transformation through limits on migration, keeping rural wages low and inequality high (Moore, 1966; Acemoglu and Robinson, 2006). However, it has been recognized that democracy alone might not be enough to decrease inequality as elites can still capture the political system through various mechanisms (e.g., Alesina and Tabellini, 1989; Acemoglu and Robinson, 2008; Acemoglu and others, 2013).

Economic Growth. The main channel from growth to inequality is described by the Kuznets curve (Kuznets, 1955) and is thought to follow an inverted u-shape relationship. Throughout the development process, inequality first increases and then decreases as the population moves from the traditional to the modern sector. The existing evidence on the Kuznets hypothesis is, at best, inconclusive (Barro 2008; Kanbur, 2000; Cornia and others, 2004, and references therein).

B. Results

We use a three-pronged approach in analyzing and presenting our results. First, we discuss results from our baseline model, which relates various measures of inequality to the most common determinants identified in the literature. Second, because Asia is the focus of this study, we investigate and discuss the extent to which the drivers, particularly the effect of policies, differ in Asia compared to other regions. Third, 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.

Baseline

Results from the baseline regressions are broadly in line with findings in the empirical literature (Table 1). Focusing on the net Gini, our main measure of income inequality, we confirm most of our priors in section V.A. In particular, the results highlight that a higher level of human capital and trade openness are associated with lower income inequality (Table 1, column 1). Financial openness and financial sector deepening seem to aggravate inequality. The latter result, which is more robust, is consistent with recent empirical findings (Roine and others, 2009; Dabla-Norris and others, 2015a), suggesting that financial sector deepening mainly benefits higher-income groups and high-skilled sectors that already enjoy access to financial services. Government consumption is associated with lower income inequality, as expected. By allowing a transfer of wealth from the poorest to the richest, inflation is associated with higher income inequality while the presence of a government accountable to its people (democratic accountability) is associated with lower income inequality.

Recognizing the methodological shortcomings of the Gini coefficient, we also use alternative measures of income inequality such as the income share of the bottom 10 percent and the income share of the top 10 percent (Table 1, columns 4 and 5) to confirm some of our previous findings. Using the Palma ratio, which is less sensitive to changes in the middle of the distribution, confirms our findings regarding the role of human capital, trade openness, financial opening and deepening as well as inflation in explaining income inequality. In addition, a number of potential drivers turned significant. Growth appears to be equalizing with higher per capita GDP growth being accompanied by lower inequality, consistent with the recent literature. This finding holds for our global sample, however, after 1990, growth in Asia was not accompanied by improving income distribution.¹⁸ As expected, technological progress is associated with higher inequality, most likely reflecting the fact that it tends to disproportionately benefit the relatively more skilled and more privileged.

Fiscal policy and technological progress seem to have been the most important drivers of income inequality in advanced economies, while financial deepening and human capital have

¹⁸ In Table 2 on Asia-specific drivers, when growth is interacted with the Asia dummy, the coefficient turned positive although not significant. Our main results are robust when growth is replaced with the log of GDP per capita and its squared term.

been the instrumental drivers in developing economies (Appendix A Table A1). 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 about one third of a net Gini point. During the same period, financial deepening, captured by growth of domestic credit to the private sector of 16 percentage points of GDP, has been associated with an increase by about one Gini point in developing countries.¹⁹

Table 1. Drivers of Inequality (Baseline)

Explanatory variables	Dependent variables:				
	Net Gini	Market Gini	Palma ratio (top 10% to bottom 40%)	Bottom 10% income share	Top 10% income share
	(1)	(2)	(3)	(4)	(5)
Growth, <i>t-1</i>	0.023 (1.248)	0.026 (0.840)	-0.010* (-1.891)	0.010* (1.887)	-0.016 (-0.650)
Human Capital, <i>t-1</i>	-0.042*** (-5.951)	-0.002 (-0.269)	-0.010*** (-5.407)	-0.001 (-0.355)	-0.000 (-0.033)
Trade Openness, <i>t-1</i>	-0.006* (-1.786)	-0.003 (-0.816)	-0.003** (-2.121)	-0.002* (-1.689)	-0.009 (-1.414)
Financial Openness, <i>t-1</i>	0.002* (1.727)	0.003*** (2.713)	0.001*** (3.084)	0.000 (0.578)	0.003** (2.483)
Financial Deepening, <i>t-1</i>	0.017*** (7.797)	0.023*** (5.266)	0.003*** (2.923)	-0.000 (-0.062)	0.008* (1.676)
Technology, <i>t-1</i>	-0.000 (-0.001)	0.103 (0.752)	0.067* (1.735)	0.022 (0.810)	0.198 (1.458)
Gov. Consumption, <i>t-1</i>	-0.080* (-1.885)	0.031 (0.750)	-0.001 (-0.083)	-0.001 (-0.053)	0.061 (0.904)
Inflation, <i>t-1</i>	0.006** (2.542)	-0.001 (-0.312)	0.000** (2.089)	-0.001*** (-3.188)	0.004** (2.305)
Democratic accountability, <i>t-1</i>	-0.002* (-1.763)	-0.004*** (-2.884)	0.000 (0.214)	-0.000 (-1.397)	0.001 (0.878)
Observations	990	990	635	635	635
Number of countries	82	82	81	81	81
Time fixed effects	YES	YES	YES	YES	YES

Driscoll-Kraay robust t-statistics in parentheses. They are robust to very general forms of cross-sectional and temporal dependence. 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

Is Asia Different?

This section investigates whether the drivers of inequality in Asia differ from other regions, with a focus on policy variables. As such, the section augments the baseline regressions with various interaction terms by combining key policy variables with Asia dummies as illustrated below:

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

¹⁹ When splitting the sample between advanced and developing economies, we also find evidence of a Kuznets curve for developing economies and an inverse curve for advanced economies. The inverted Kuznets curve in advanced economies is explained by the fact that greatest income growth occurs to the highest income sectors (technology and finance) during boom periods.

Where all variables are defined as above and Z_{it-1} refers to human capital, financial deepening, and government consumption.

Although not significant for most variables, the interaction terms with Asian dummies yield a change in the sign of the respective coefficients (Table 2). This suggests that there may exist specific aspects of human capital formation, financial deepening, and fiscal policy that differently explain inequality in Asia compared to other regions. This warrants further investigation.

Table 2. Drivers of Inequality (Asia Specificity)

Explanatory variables	Dependent variable: Net Gini
Growth, $t-1$	0.024 (1.045)
Human Capital, $t-1$	-0.045*** (-5.983)
Human Capital*Asia, $t-1$	0.002 (0.078)
Trade Openness, $t-1$	-0.013** (-2.396)
Financial Openness, $t-1$	0.001 (0.856)
Financial Deepening, $t-1$	0.011*** (4.522)
Financial Deepening*Asia, $t-1$	-0.015* (-1.784)
Technology, $t-1$	-0.093 (-1.513)
Gov. Consumption, $t-1$	-0.199*** (-3.510)
Gov. Consumption*Asia, $t-1$	0.14 (1.210)
Inflation, $t-1$	0.007*** (4.023)
Democratic accountability, $t-1$	-0.002 (-1.471)
Share of employment in Industry	-0.190*** (-4.828)
Share of employment in Services	0.109*** (5.017)
Observations	848
Number of groups	78
Time fixed effects	YES

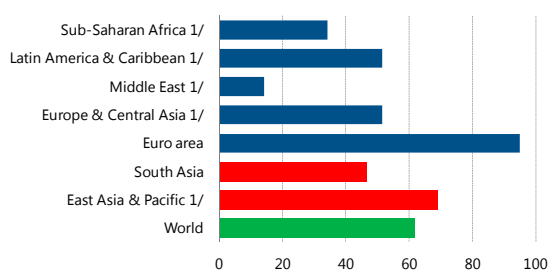
Driscoll-Kraay robust t-statistics in parentheses. They are robust to very general forms of cross-sectional and temporal dependence. Country fixed effects, time fixed effects and a constant term are included in each regression but are not reported.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Because many Asian economies experienced sizable structural transformation during the recent decades, we also control for the share of employment in industry and services to capture potential shifts from agriculture to industry and services. These shifts may initially benefit a small segment of the population, leading to higher inequality. However, inequality would subsequently decline as a larger share of the population finds employment in the higher income sectors. Our main results are robust to these additional factors. In addition, a larger share of employment in industry is associated with a decline in income inequality while higher employment in services is associated with higher income inequality. The latter result is probably driven by the rapid growth in the service sector in high-income and upper-middle income nations, moving employment out of the industrial sector. In these countries, the service sector tends to have larger skill premia due to its high duality encompassing lawyers and airline pilots, but also barbers and janitors (Firebaugh, 2003).

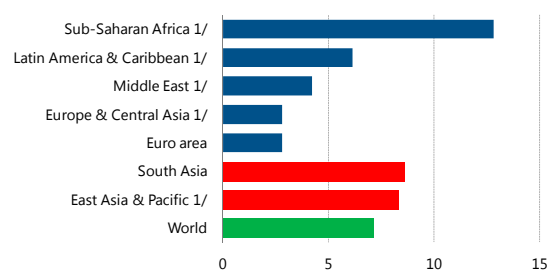
Financial Deepening. While financial deepening has been associated with higher inequality overall, it has been equalizing in Asia (Table 2).²⁰ This reflects not only better availability of credit in Asia during the last decade, but also successful policies of financial inclusion that have reached the lower end of the income distribution with an increased geographical outreach. In particular, financial inclusion policies seem to have played an important role for three ASEAN countries in achieving a decline in inequality (see section VI.B.). 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 (ATMs) per 1,000 square kilometers quadrupled during the same period (Terada and Vandenberg, 2014). Figure 23 and Figure 24 illustrate clearly the good performance of Asian economies when it comes to financial inclusion, such as the greater use of banks accounts or access to credit for entrepreneurial activities.

Figure 23: Population with Account
(In percent of total 15+ population ; year of 2014)



Source: World Bank, Global Findex database.
1/ Includes only developing countries in each group.

Figure 24: Access to Credit for Entrepreneurial Activities
(Borrow to start, operate, or expand a farm or business; In percent of total 15+ population ; year of 2014)



Source: World Bank, Global Findex database.
1/ Includes only developing countries in each group.

Fiscal Policy. Using government consumption as a proxy for fiscal policy may not fully capture governments' distributional policies. The empirical literature has also emphasized that what matters more for the distributional impact of fiscal policy is its composition (Clements and others, 2015). In that respect, this section assesses the impact of fiscal policy

²⁰ An equalizing effect of financial deepening has also been found for India across states (Anand and others, 2014).

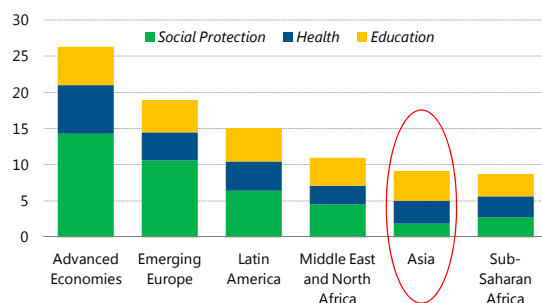
on income inequality by analyzing the specific role of various tax and expenditure instruments.

The results illustrate that a number of tax and spending instruments are associated with lower income inequality. Progressive taxation, measured by the top corporate tax rate and the top personal tax rate, is associated with lower income inequality (Table 3).²¹ Higher social spending (which includes social security pensions and unemployment compensation), education spending, and capital spending are associated with lower income inequality. These negative and significant effects reflect the possible combination of two channels. First, higher social spending such as direct transfers increase 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 having an equalizing effect.

Turning to Asia, it appears that low and poorly targeted policies may have prevented Asian economies from benefitting in terms of equalizing expenditure policies. Indeed, while education, social benefits, and capital spending seem all to have been equalizing in the rest of the sample, they have contributed to higher income inequality in Asia.²² This could be due to lower coverage of government spending, which may disproportionately benefit the rich in Asia (Figure 25 and Figure 26). More generally, social spending is relatively low in Asia (as was found in IMF, 2013), reflecting the lower revenue collection, and this has led to lower coverage of social spending such as social insurance. At only 22 percent, the percent 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 the level in the Middle East or Latin America (Figure 27). Coverage of unemployment benefits is also low in Asia and represents only half of the coverage in other regions. In addition to low coverage, social benefits seem also unequally distributed in Asia.

Figure 25: Composition of Social Spending

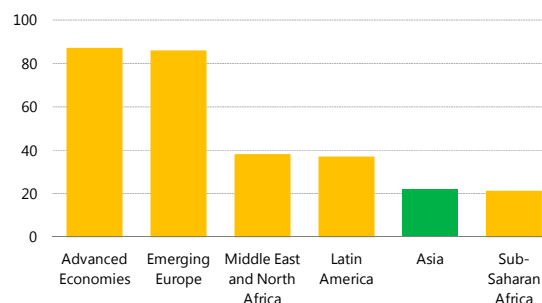
(In percent of GDP; year of 2010 or latest)



Sources: OECD; Eurostat; ADB; IMF WEO; UN; WHO; World Bank; and IMF staff calculations.

Figure 26: Pension Receipt Rate

(In percent of total population above legal retirement age)



Sources: ILO (2009); Eurostat (2009); World Bank (2009); and IMF staff calculations.

²¹ Comparable results (available upon request) are found when progressivity is measured as the ratio of direct to indirect taxes.

²² A similar finding has been made for China in particular (Cevik and Correa-Caro, 2015).

Table 3. Drivers of Inequality (Fiscal Policy)

Explanatory variables	Dependent variable: Net Gini	
	(1)	(2)
Top Corporate tax rate, <i>t-1</i>	-0.066*** (-3.541)	-0.065*** (-3.464)
Top Personal tax rate, <i>t-1</i>	-0.053* (-1.785)	-0.048 (-1.481)
Health Spending, <i>t-1</i>	0.239 (1.111)	0.244 (1.190)
Education Spending, <i>t-1</i>	-0.385** (-2.481)	-0.453** (-2.472)
Social Benefits, <i>t-1</i>	-0.193*** (-5.889)	-0.243*** (-6.810)
Capital Spending, <i>t-1</i>	-0.162** (-2.118)	-0.228*** (-2.909)
Top Corporate tax rate*Asia, <i>t-1</i>		-0.017 (-0.358)
Top Personal tax rate*Asia, <i>t-1</i>		0.015 (0.482)
Health Spending*Asia, <i>t-1</i>		-0.446 (-0.947)
Education Spending*Asia, <i>t-1</i>		0.943* (1.968)
Social Benefits*Asia, <i>t-1</i>		0.680*** (3.890)
Capital Spending*Asia, <i>t-1</i>		0.399** (2.642)
Observations	519	519
Number of countries	56	56
Time fixed effects	YES	YES

Driscoll-Kraay robust t-statistics in parentheses. They are robust to very general forms of cross-sectional and temporal dependence. Country fixed effects, time fixed effects and a constant term are included in each regression but are not reported. All regressions control for the determinants of inequality identified in the baseline specifications.

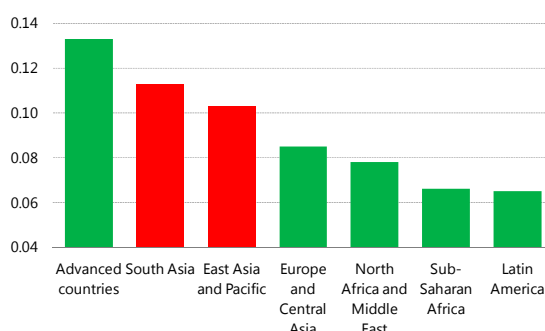
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Human Capital. To further analyze the importance of education as a driver of income inequality, we specifically investigate the role of skill premium, identified in the literature as a key driver of income inequality.²³ Skill premium is associated with higher inequality overall, reflecting that gains from education have disproportionately benefitted the higher end of the income distribution (Appendix A Table A2). Skill premia seem to have played a greater role in explaining inequality in Asia. Indeed, the contribution of skill premia to higher inequality seems to have been three times larger in Asia than elsewhere. This has also been confirmed by Barro and Lee (2010), who find that Asian countries have the highest returns to schooling after advanced countries. Looking at various levels of education, primary schooling is associated with lower inequality overall but does not seem to impact inequality in Asia, reflecting the importance of broadening higher education to compress skill premia. Higher level education

²³ The skill premium is calculated using the Occupational Wages around the World Database, which is based on ILO 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.

(tertiary education) is associated with greater income inequality, supporting again the existence of a skill premium for the relatively limited highly skilled labor force.

Figure 27: Regional Comparison: Return to Schooling Rate



Source: Barro and Lee (2010).

Demographics and Labor Market Institutions. We further assess the robustness of our results to various factors such as (i) demographics, an important element for many Asian economies facing aging pressures, and (ii) labor market institutions that have recently been identified as key drivers of income inequality (Dabla-Norris and others, 2015a; Jaumotte and Osorio Buitron, 2015). Our main results are robust after controlling for these factors. In addition, we find that higher union density is associated with lower income inequality (Appendix A Table A2). A larger share of dependents (below 15 and over 64) over the working age population is associated with higher income inequality while a higher gross replacement ratio is associated with lower income inequality.

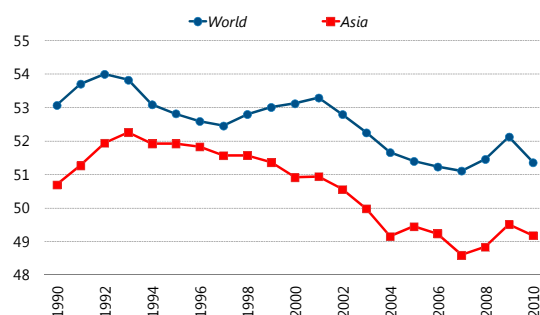
C. The Role of the Labor Share

Income inequality and the labor share of income. 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, i.e., the functional distribution of income between capital and labor. As 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 part of inequalities in various countries (Fräbendorf and others, 2011; Garcia-Peñalosa and Orgiazzi, 2013), a higher labor share would usually suggest lower income inequality (all else equal).²⁴ In fact, this has been confirmed by various empirical papers (Daudey and Garcia-Peñalosa, 2007; Checchi and Garcia-Peñalosa, 2010).

²⁴ 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).

Labor shares have declined during 1990–2010 in Asia, on average, in line with global trends and the previously documented increase in income inequality (Figure 28).²⁵ Delving into individual country experiences suggests a more nuanced picture (Figure 29). For 7 out of 13 countries, the labor share did decrease while the Gini index increased.²⁶ Korea, the Philippines, and Thailand experienced the opposite, i.e., rising labor shares and declining Gini indices. Only for India, Sri Lanka, and Hong Kong SAR labor shares rose while inequality went up as well.

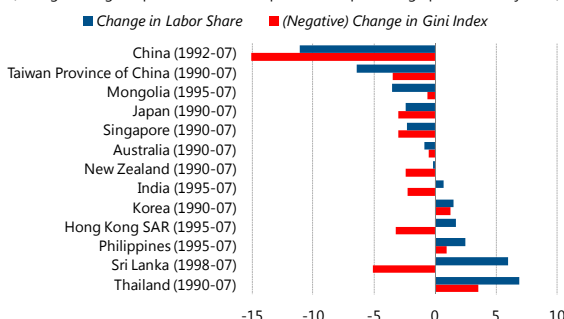
Figure 28: World v.s. Asia: Total Labor Share
(In percent)



Sources: Karabarbounis and Neiman (2014); ILO; and IMF staff calculations.

Figure 29: Selected Asia: Labor Share

(Change during the period indicated in parentheses; percentage points; un-adjusted)



Sources: Karabarbounis and Neiman (2014); ILO; and IMF staff calculations.

Drivers of the labor share. The labor share and its drivers have received new attention over the last decade. Various papers (Bentolila and Saint-Paul, 2003; Guscina, 2006; IMF, 2007; Stockhammer, 2013) have identified a group of key drivers including globalization, and technological and structural change, similar to our previous regressions on income inequality. Because we interpret the labor share as an additional measure of distribution we make use of the same specification used previously, but we replace the dependent variable with the labor share. This will allow a direct comparison with table 2 in section V.B. and inform of the particular drivers of the distribution of income among labor and capital.

Our empirical results (Appendix C Table C1) 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. Higher human capital decreases the labor share, reflecting the negative impact of higher productivity on labor demand while 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 with regards to key policy variables.

²⁵ Following Karabarbounis and Neiman (2014) we regress labor shares weighted by GDP on time dummies and country-fixed effects.

²⁶ We report the changes between 1990 and 2007 as the crisis lead to many trend reversals that might not reflect long-term developments.

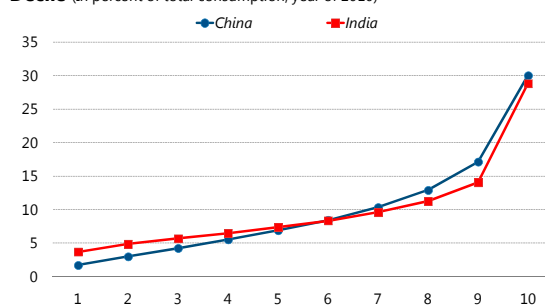
VI. CASE STUDIES

A. Understanding Rising Inequalities in India and China

Developments in poverty and inequality in China and India have been extensively studied and compared in recent years (Chaudhuri and Ravallion, 2007; Gajwani and others, 2007; Piketty and Qian, 2009; Ravallion, 2009; Balakrishnan and others, 2013). Spurred by wide-ranging economic reforms, both countries grew 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.

Trends in inequality. To better understand the recent increase in inequality in China and India a closer look at the distributions of consumption is warranted (Figure 30).²⁷ The most recent data confirms that China is more unequal than India as the bottom five deciles have lower shares in total consumption (which is consistent with the level of the Gini described above). At the same time, the share going to the top 10 percent is very similar for both countries.

Figure 30: China v.s. India: Consumption Distribution by Decile (In percent of total consumption; year of 2010)

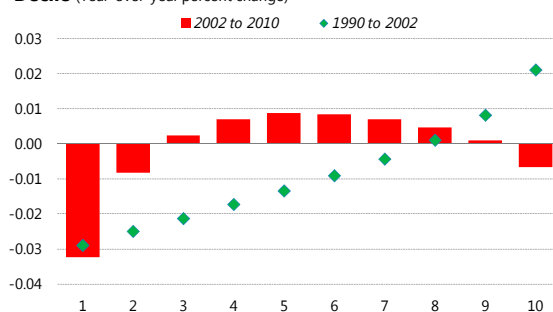


Source: World Bank, PovcalNet database.

Over time, the shifts in the distribution of consumption have been much more pronounced in China. While the share of the bottom 70 percent had been falling until 2002, the top 20 percent were gaining. More recently, the gains have shifted to the middle, with the bottom 20 percent of the population still missing out. India has seen much smaller changes and a much more persistent trend of only the top 20 percent gaining. To gain a better understanding of the forces at work, we examine the potential drivers behind the recent trends.

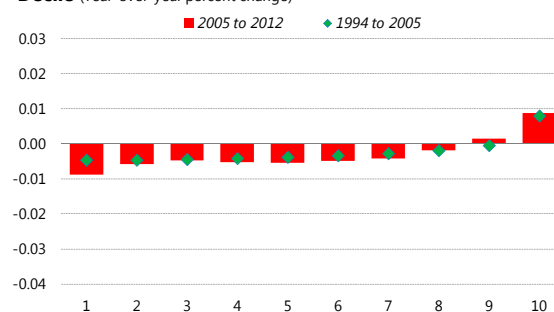
²⁷ Detailed information on income distributions is not readily available for these countries. However, for the case of urban China it has been found that consumption and income inequality track each other closely (Ding and He, forthcoming).

Figure 31: China: Dynamics of Consumption Share by Decile
(Year-over-year percent change)



Source: World Bank, PovcalNet database.

Figure 32: India: Dynamics of Consumption Share by Decile
(Year-over-year percent change)

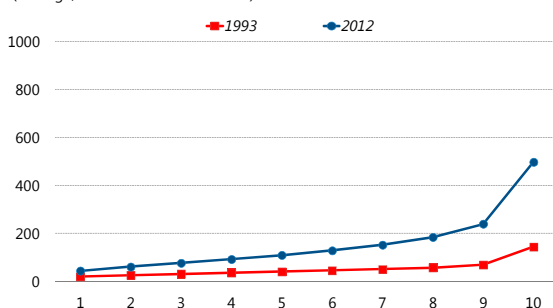


Source: World Bank, PovcalNet database.

Drivers of inequality. Various drivers have been put forth to explain the surge in inequality in India and China. We focus on spatial and educational inequalities and the role of policies.

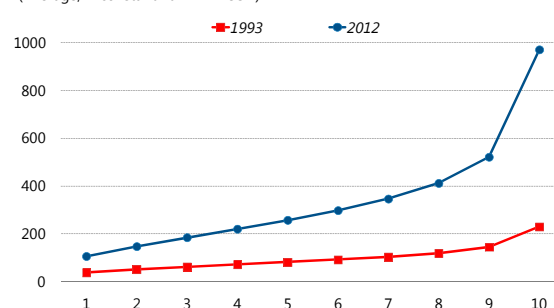
Spatial Inequality. Over the last two decades all deciles of the distribution have experienced an increase in mean consumption in both countries. In China, this growth has been most pronounced in the urban areas, suggesting that a large contribution to increased inequality stems from differences among rural and urban areas (Figures 33 and 34). In India, differences between rural and urban areas increased as well (Figures 35 and 36). In addition, Figure 36 suggests that intra-urban inequality has risen significantly. These findings are consistent with the literature.

Figure 33: Rural China: Consumption by Decile
(Average; in constant 2011 PPP USD)



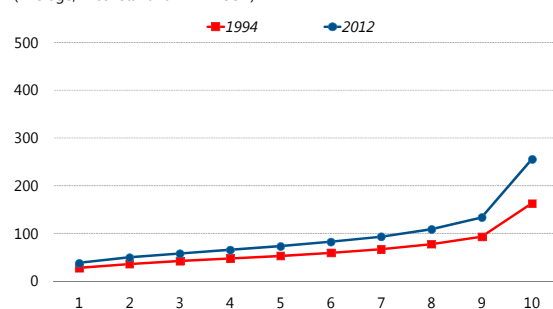
Source: World Bank, PovcalNet database.

Figure 34: Urban China: Consumption by Decile
(Average; in constant 2011 PPP USD)



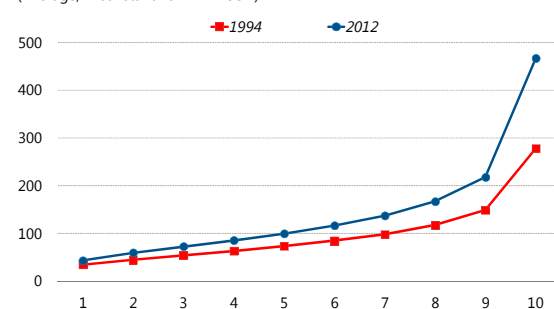
Source: World Bank, PovcalNet database.

Figure 35: Rural India: Consumption by Decile
(Average; in constant 2011 PPP USD)



Source: World Bank, PovcalNet database.

Figure 36: Urban India: Consumption by Decile
(Average; in constant 2011 PPP USD)



Source: World Bank, PovcalNet database.

Indeed, differences between rural and urban areas have been found to be a key driver of rising income inequality in China and the most important determinant of the level of inequality (Li and others, 2014). Contributing to this inequality is 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). Rapid industrialization in particular regions and the concentration of FDI in coastal areas have also led to significant 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 and others, 2014).

In India regional inequality is lower than in China (Gajwani and others, 2007). Rising inequality has been found to be primarily an urban phenomenon (Cain and others, 2014). But in addition, the rural-urban income gap has increased, for which higher rural inflation has been found to be a key driver (Kanbur and Zhuang, 2014; Anand and others, 2014). Differences in per capita income have also risen between Indian states (Purfield, 2006), and can mainly be explained by variation in human capital accumulation (Gajwani and others, 2007).

Educational Inequality. China started its transition period with impressively high primary and middle school enrollment rates, while lagging behind in tertiary enrollment (Heckman and Yi, 2012). With rapid technological transformation and fast capital accumulation, the demand for high-skilled labor grew quickly and with it returns to education and wage inequality (Dollar, 2007). Additionally, the economic transition contributed to higher income risk, especially for non-SOE, less-educated, and older workers (Ding and He, forthcoming). The government expanded higher education in 1999, with tertiary enrollment increasing from 8 percent in 2000 to 30 percent in 2015. However, educational inequalities have worsened (Dollar, 2007) mainly due to the limits on urban-rural migration and the high level of decentralization of the fiscal system. With education mainly financed at local level, rich provinces are able to provide more and better quality schooling. Schooling costs are rising and have to be paid for by family resources. Due to credit constraints, poor families are left behind (Heckman and Yi, 2012), which perpetuates inequality.

In India, educational attainment has been found to be an important factor in explaining rising inequality over the last two decades.²⁸ In rural areas this can be attributed to higher inequality in the years of education among household heads, while in the urban areas it is explained in large parts by higher returns to education in high-skilled service sectors and occupations (Cain and others, 2014). Major efforts have been undertaken by state governments to increase school participation, and states that boosted spending on education have been found to achieve higher equity (Anand and others, 2014). In addition, India launched the National Program of Universal Elementary Education in 2001 and the Mid-Day Meal Scheme in 2004 (Wu and others, 2005). Still, the Public Report in Basic Education has pointed to major problems of educational quality and provision in rural areas (Probe Team, 1999; De and others, 2011). About two-thirds of the children who do not attend school are in five of the

²⁸ Cain and others (2014) find that educational attainment can explain 47 percent of the increase in inequality in rural India and 42 percent in the urban sector from 1993 to 2004.

poorest states (Asadullah and others, 2012). Gender, caste and religion are also persistent in explaining gaps in school participation and attainment (Asadullah and others, 2009).

Fiscal Policies. Both countries have struggled with basic service delivery in education and health (Chaudhuri and Ravallion, 2007). Fiscal redistribution is low and tax revenues remain small compared to peers despite improvements.²⁹

China has improved revenue collection significantly, doubling its tax-to-GDP ratio since the early 1990s. In particular, Piketty and Qian (2009) find that China managed to increase its income tax base and revenues significantly. Still, more than half of the revenues stem from indirect taxes and income taxes do not play a significant role in redistribution due to their design and implementation (Li and others, 2014; Cevik and Correa-Caro, 2015). Additionally, social security contributions have been found to be regressive (Lam and Wingender, 2015).

India's tax-to-GDP ratio has only increased slightly by 1.6 percentage points from 1990 to 2013. Income tax revenues have also stagnated at around 0.5 percent of GDP due to constant adaption of income brackets and exemption levels (Piketty and Qian, 2009).³⁰

Inclusiveness of Policies. China introduced the “Minimum Livelihood Guarantee Scheme” (Dibao) for social protection in the 1990s and expanded its coverage through the years. Still, coverage is limited and the level of income provided low (Cevik and Correa-Caro, 2015). It has not been found to reduce inequality, but helped to alleviate poverty (Li and Yang, 2009). Furthermore, various social programs are aiming to expand social safety nets and provide support for the development of rural areas (New Rural Cooperative Medicare, New Rural Pension Scheme, Two Exemptions and One Subsidy Program) and western regions (Western Development Strategy) (Li and others, 2014), which might explain some of the positive changes in the distribution from 2002 to 2010. India's labor market rigidities in the formal labor market have been found to lead to a high share of employment in the informal sector (Sharma, 2009), hampering pro-poor growth (Topalova, 2008). India has shown significant advances in financial inclusion, such as a push for financial literacy and priority sector lending policies. More recently, the Pradhan Mantri Jan Dhan Yojana was launched aiming for universal account coverage (Sahay and others, 2015a; Dabla-Norris and others, 2015b). In addition, these are to be linked to India's unique identification system (Aadhaar) for future cash transfers under various social security schemes.

B. What Explains Declining Inequality in Malaysia, Philippines, and Thailand?

Trends in Inequality. With inequality growing in the majority of Asian countries, three economies stand out by registering narrowing inequality over the last two decades. Only Thailand seems to follow a clear downward trend throughout most of the period. The Philippines and Malaysia first registered an uptick in inequality and declines more recently.

²⁹ In 2013 China's tax-to-GDP ratio was at 19 percent and India's was at 17 percent, which is significantly below an average of about 35 percent in the OECD countries.

³⁰ Less than 3 percent of the population was subject to the income tax in 2008.

Changes of 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, they were able to gain in Thailand.

Figure 37: Malaysia, Philippines, Thailand: Net Gini Index
(ln Gini points)

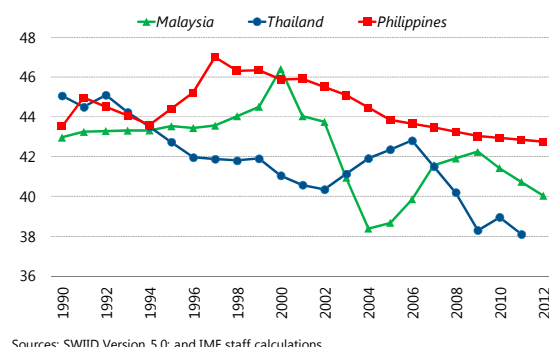
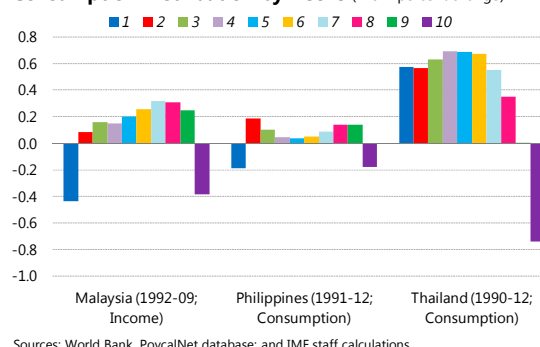


Figure 38: Malaysia, Philippines, Thailand: Income/Consumption Distribution by Decile (Y-o-Y percent change)



Drivers of Inequality. The drivers of the long-term downward trends can be attributed to various policies. We focus 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 Kapit-bisig Laban sa Kahirapan (Comprehensive and Integrated Delivery of Social Services) program was implemented, providing resources to poor rural municipalities to invest in public goods (World Bank, 2013). After removing fuel subsidies in the 1990s a package of pro-poor spending programs was launched in mid-2008 to mitigate the effects of the food and fuel crisis (Alleyne and others, 2013). Additionally, conditional cash transfers introduced in 2008 (Pantawid Pamilyang Pilipino Program) set health and education goals for participants, which aim at alleviating the persistent inequality in access to education (Chongvilaivan, 2014). Growing rapidly, it covered 3.9 million households at the end of 2013, or 75 percent of all households identified as poor by the national targeting scheme. Despite its far reach, the budget outlay stayed below 0.4 percent of GDP by 2013. The 2011–16 development plan has aimed to improve access to basic social services further, and build stronger safety nets.

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 the latter from becoming impoverished (Yiengprugsawan and others, 2010). More recently, energy subsidies have been reduced, while protecting the vulnerable population through means-tested procedures. Additionally, the rice-pledging scheme was replaced by direct cash transfers to small-scale farmers only. The Eleventh National Economic and Social Development Plan, spanning 2012–16, aims to improve access to social services and ensure a fair distribution of development benefits. This includes the goal of covering the whole population under the national welfare system by 2016 (Chongvilaivan, 2014).

Malaysia stands out due to its high level of infrastructure compared to many of its ASEAN peers, which goes back to a package of reforms in the 1980s and 1990s (Seneviratne and

Sum, 2013; Mourmouras and Sheridan, 2015). This might have helped to spread the gains from growth more evenly. In addition, the Government Transformation Program was launched in 2009 to improve public service delivery, which resulted in new assistance reaching more than a quarter of the extreme poor. In its development plan for 2011–15, the Malaysian government also aimed at equitable opportunities for all and providing a social safety net for disadvantaged groups (Chongvilaivan, 2014). In 2013–14, the government eliminated petroleum subsidies, which had benefitted the higher-income households relatively more. Furthermore, improving the quality of education and expanding access to tertiary education have become a priority through the Education Blueprint 2013–25 and a minimum wage was introduced in 2013.

Financial Inclusion. For the Philippines, efforts to expand financial access are mainly driven by microfinance institutions, with microfinance loans constantly rising over the period 2002–13.³¹ Additionally, congress mandated that from 2008 to 2018 at least 8 percent of banks’ loan portfolio be allocated to micro and small enterprises. Micro insurance has also been picking up over the last years, making the Philippines one of the top micro insurance markets in Asia (Llanto, 2015).³²

Thailand has probably been the most ambitious when it come to financial inclusion policies. In 2001 the government established village funds nationwide, providing seed money of one million baht to each to encourage savings and provide credit. This created one of the largest microfinance initiatives in the world. Risk mitigation was improved through extending risk coverage to the informal sector in 2011, the launch of an Agricultural Insurance scheme in the same year and the creation of the National Catastrophe Insurance Fund in 2012. A bureau of Financial Inclusion Policy and Development was also established and is housed in the Ministry of Finance. As of 2011, Thailand achieved the highest level of financial usage compared to other South East Asian countries (ADB, 2013).

For the Bank Negara Malaysia, promotion of financial inclusion through development of microfinance, consumer education, and a protection framework has been a mandated objective since 2009 (Sahay and others, 2015b). Enhancing financial inclusion has also been an aim of Malaysia’s Financial Sector Blueprint 2011–20. First results can be seen as various inclusion parameter show a remarkable improvement between 2011 and 2014. The share of individuals owning an account at a financial institution increased from 66.2 percent to 80.7 percent. The share of the population borrowing from a financial institution grew from 11.2 percent to 19.5 percent.

VII. CONCLUDING REMARKS AND POLICY IMPLICATIONS

This paper has documented the rise in income inequality in most of Asia, in contrast to most other regions. Global factors, such as skill-biased technological change, have had a role to

³¹ Microfinance loans increased from P2.6 billion (\$85.79 million) in 2002 to P8.7 billion (\$196.73 million) in 2013, equivalent to an 11.6 percent compound annual growth rate.

³² Microinsurance coverage among Filipinos rose to 19.95 million (20.4 percent of the population) in 2013 from 3.1 million (3.4 percent of the population) in 2008.

play. However, regional and country-specific factors are also important. In some of larger countries, spatial disparities, in particular between rural and urban areas, explain much of the increase in income inequality. While Asia has grown rapidly and poverty has been alleviated significantly, higher income inequality has lowered the effectiveness of growth to combat poverty and prevented the building of a substantial middle-class in many countries.

Our findings also suggest that in some respects, the drivers are different in Asia, and these drivers relate to policies. Financial deepening has been equalizing in Asia, in contrast to other regions. On the other hand, higher social sector spending, education spending, and capital expenditure, are associated with higher income inequality in Asia (contrary to the rest of the world), due to weak coverage and the benefits disproportionately accruing to those at the higher end of the income distribution. In addition, in line with the rest of world, greater progressivity in taxation ameliorates income inequality in Asia.

These findings, therefore, suggest that policies could have a substantial effect on reversing the trend of rising inequality. It is imperative to address inequality of opportunities, in particular to broaden access to education, health, and financial services. We focus below on the following policies: strengthening the redistributive effect of fiscal policy, promoting well-designed financial inclusion, and tackling labor market duality and informality.

Designing More Inclusive Fiscal Policies

Tax and expenditure policies need to be carefully designed to enhance their distributional objectives. Although taxes are primarily aimed at collecting revenue to finance 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 a better targeting of social benefits, which can also finance an expansion of their coverage.

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 their progressivity is important. 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, 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 earnings potential and reducing income gaps.

Policies to Further Foster 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 enterprises access to credit, 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, the access to financial services of the bottom 40 percent of the population remains limited. Previous IMF work has found that 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 are beneficial (Sahay and others, 2015). However, policies to foster financial inclusion have to be designed carefully being mindful of the implications for financial stability, and be accompanied by upgrades to bank supervision and regulation to protect 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, in particular addressing gaps in legal protection for regular and non-regular workers, and by encouraging new hiring to take place 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, to simplify business registration and reduce red tape, as well as providing incentives to facilitate registration and legal recognition, would be helpful in reducing the incentives to remain in the informal sector.

APPENDIX A: REGRESSION RESULTS FOR INEQUALITY

Table A1. Drivers of Inequality (Advanced vs. Developing Economies)

Explanatory variables	Dependent variable: Net Gini	
	Advanced economies (1)	Developing economies (2)
Log(GDP per capita)	-0.375*** (-4.948)	0.247*** (6.110)
Squared Log(GDP per capita)	0.020*** (4.697)	-0.015*** (-7.134)
Human Capital, <i>t-1</i>	-0.006 (-0.953)	-0.048** (-2.176)
Trade Openness, <i>t-1</i>	-0.010** (-2.536)	-0.017** (-2.055)
Financial Openness, <i>t-1</i>	-0.002 (-1.655)	0.023 (1.643)
Financial Deepening, <i>t-1</i>	0.003 (0.824)	0.054*** (4.289)
Technology, <i>t-1</i>	0.201* (1.915)	0.158 (1.135)
Gov. Consumption, <i>t-1</i>	-0.240*** (-6.330)	-0.054 (-1.074)
Inflation, <i>t-1</i>	-0.039 (-1.252)	-0.000 (-0.305)
Democratic accountability, <i>t-1</i>	0.003 (1.512)	-0.003** (-2.412)
Observations	472	534
Number of countries	31	51
Time fixed effects	YES	YES

Driscoll-Kraay robust t-statistics in parentheses. They are robust to very general forms of cross-sectional and temporal dependence. 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

Table A2. Drivers of Inequality (Human Capital, Demographics, and Labor Market Institutions)

VARIABLES	Dependent variables: Net Gini				
	Human Capital	Demographic and Labor Market Institutions			
	(1)	(2)	(3)	(4)	(5)
Skill Premium, <i>t-1</i>	0.007* (1.982)				
Skill Premium*Asia, <i>t-1</i>	0.022*** (2.998)				
Primary school completion, <i>t-1</i>	-0.140*** (-4.139)				
Primary school compl.*Asia, <i>t-1</i>	0.141* (1.787)				
Secondary school enrollment, <i>t-1</i>	-0.006 (-0.180)				
Secondary school enrol.*Asia, <i>t-1</i>	-0.074 (-0.948)				
Tertiary school enrollment, <i>t-1</i>	0.090* (1.989)				
Tertiary school enrol.*Asia, <i>t-1</i>	-0.032 (-1.130)				
Minimum Wage to Mean Wage, <i>t-1</i>		0.004 (0.802)			
Gross replacement rate, <i>t-1</i>			-0.070*** (-4.474)		
Union density, <i>t-1</i>				-0.030** (-2.278)	
Age dependency ratio, <i>t-1</i>					0.002*** (7.527)
Observations	232	388	521	600	990
Number of groups	42	49	66	55	82
Time dummies	YES	YES	YES	YES	YES

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

APPENDIX B: ROBUSTNESS CHECKS OF THE BASELINE REGRESSION

A first robustness check (Table B1) accounts for the nature of the SWIID data being based on imputed values. The regression is a standard OLS regression without Driscoll-Kraay correction as the two commands cannot be combined. The regression is performed repeatedly using multiple Monte Carlo simulations and results are averaged. The results for the Net Gini support the previous findings. The three estimates with the highest significance remain significant. Those coefficients that were significant at the 10 percent level lose this significance.

A second robustness check (Table B2) is obtained by applying difference GMM, which also accounts for the persistence of the Gini. Due to high serial correlation we instrument with lags four and above. The same three variables remain significant. Additionally, technology is found to increase the net Gini.

Table B1. Robustness Checks Using Multiple Monte Carlo Simulations and Difference GMM

Explanatory variables	Dependent variables:	
	Net Gini, Monte Carlo Simulation	Net Gini, Difference GMM
	(1)	(2)
Growth	0.023 (0.893)	0.021 (1.487)
Human Capital	-0.042*** (-2.638)	-0.017* (-1.817)
Trade Openness	-0.006 (-0.708)	-0.002 (-0.550)
Financial Openness	0.002 (0.912)	0.000 (0.292)
Financial Deepening	0.017*** (4.484)	0.004* (1.710)
Technology	-0.000 (-0.000)	0.138* (1.955)
Gov. Consumption	-0.080 (-1.213)	-0.024 (-0.772)
Inflation	0.006** (2.402)	0.009*** (4.198)
Democratic accountability	-0.002 (-1.443)	-0.000 (-0.321)
Lag of Gini		0.894*** (28.530)
Observations	990	913
Number of countries	82	82
Time dummies	YES	YES
Sargan Test		0.740
AR(4)		0.936

*** p<0.01, ** p<0.05, * p<0.1

APPENDIX C: REGRESSION RESULTS FOR LABOR SHARE

Table C1. Drivers of the Labor Share

Explanatory variables	Dependent variable:
	Labor Share
	(1)
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)
Gov. Consumption, t-1	0.262** (2.546)
Gov. 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)
Observations	673
Number of groups	60
Time dummies	YES

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

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