

THE CASE FOR CONVERGENCE: ASSESSING REGIONAL INCOME DISTRIBUTION IN ASIA AND THE PACIFIC

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This paper considers income inequality in Asia and the Pacific, examining whether there has been an increase or decrease in income inequality among countries in the region in recent decades. By analysing the position of countries' GDP per capita relative to that of a reference economy (Australia), the study finds that between the years 1970 and 2014, most of the region's less affluent countries were able to catch up in relative terms, allowing them to slowly move up the income matrix towards higher tier groups. Subregional examination reveals that most of the income convergence in the Asia-Pacific region was due to exceptional economic growth in East and North-East Asia and, to a lesser extent, in South-East Asia. While the paper shows that relative income differences between countries in the region have fallen since the 1970s, it points to the need for differentiating between relative and absolute measures of inequality. Insufficient convergence and substantial initial differences in GDP per capita have meant that, despite a decline in relative inequality, absolute differences in average income have grown during the same period.

JEL classification: E10, O40

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I. INTRODUCTION

The Asia-Pacific region has experienced unprecedented economic growth over the past few decades. Regional gross domestic product (GDP) per capita more than doubled between 1990 and 2014, while global GDP per capita grew by 50 per cent. This surge in economic growth enabled increased investment in human capital and created job opportunities throughout the region, lifting millions of people out of extreme poverty and improving overall well-being. Since 1990, the poverty headcount in the region has decreased sharply, from 30 per cent to some 10 per cent, pointing to impressive strides made in poverty alleviation (ESCAP, 2017).

Despite this sustained economic development and the substantial reductions in poverty, progress has disproportionately benefited the wealthiest members of society, increasing inequalities between the rich and poor in many parts of Asia and the Pacific. High inequality has not only stifled economic progress, but has also adversely affected feelings of trust and social cohesion (ESCAP, 2017; 2018). These rising levels of inequality within countries triggered public concern and academic interest, contributing to a stand-alone goal on inequality in the United Nations 2030 Agenda for Sustainable Development. Under Sustainable Development Goal 10 (SDG 10), reducing “inequalities within and among countries” is a core policy priority to ensure a sustainable and prosperous future for all. While much of the discourse surrounding inequality focuses on within-country dynamics, this paper considers the second component of SDG 10 – inequality among countries – and seeks to answer the question of how economic growth in Asia and the Pacific has affected regional income distribution.

To intuitively visualize changes in regional income dynamics over time, this study reports countries' GDP per capita in relation to the GDP per capita of Australia. It finds that regional income inequality has fallen continuously since 1970 and converged from a twin peaked to a flatter shaped distribution. The reason is that poorer countries in the region have often grown at a faster pace than richer ones. However, upon closer inspection at the subregional level, one finds substantial differences in this process. While in almost all countries in Asia and the Pacific average annual growth rates between 1970 and 2014 were higher than in Australia (the reference economy), the rate of growth was generally strongest for countries from East and North-East Asia. By comparison, North and Central Asia experienced less growth in the initial years following the collapse of the Soviet Union, as economies were in transition and undergoing structural transformation.

Descriptive analysis further shows that, while relative between-country inequality fell in the region, absolute income differences grew in almost all cases. In other words, relative convergence in countries' income was not sufficient to overcome the

significant initial gaps in GDP per capita between rich and poor countries, leading to a widening of the absolute income gap. Thus, despite impressive – and unparalleled – economic growth, substantial differences in absolute incomes between countries in Asia and the Pacific remain.

The implications of these findings are threefold: (1) the rate at which countries in Asia and the Pacific have developed in recent decades has reduced the relative income gap between rich and poor nations; (2) the reductions in poverty and relative income inequality in the region have been heavily driven by the extraordinary growth periods within a few countries; (3) the relative changes in GDP per capita have failed to reflect the continually extensive, and in most cases growing, absolute gap in incomes between rich and poor countries.

II. SETTING THE STAGE: WHY INEQUALITY BETWEEN COUNTRIES MATTERS

Under SDG 10, member States pledge to “reduce inequality within and among countries”. Both components are captured within global inequality, which consists of inequality between countries (i.e. differences between countries’ average income) and inequality within countries (i.e. differences in individuals’ or households’ income within a country). In an increasingly globalized world, where factors of production are being moved to areas with lower costs, and inter-connected individuals are better able to compare living standards across borders, notions of “fairness” and “equality” are being stretched beyond territorial boundaries (Milanovic, 2012a; 2012b). The issue of inequality should therefore not only be seen as a national priority, but also understood at the regional and international level.

While much of the academic and political discourse has focused on within-country inequality, this paper explores the second component of SDG 10, analysing income differences between countries. Despite recent academic focus on inequality within nations, the largest contribution to global income inequality stems from differences between countries (Pinkovskiy and Sala-i-Martin, 2009). Milanovic (2005) finds that between 71 per cent to 83 per cent of global inequality is the result of differences in countries’ GDP per capita.¹ Thus, GDP per capita growth is a vital instrument in altering global income dynamics. Accordingly, this paper sets out to descriptively explore changes in regional income distribution within Asia and the Pacific between 1970 and 2014.

¹ This depends on whether the Palma ratio or the Gini coefficient is used as a measure of inequality. Note that Milanovic also treats rural and urban regions in China and India as separate in his analysis, which may have an influence on his estimates.

During the 19th century and into the first half of the 20th century, income inequality between countries increased across the world (Roser, 2019; Bourguignon and Morrison, 2002). It was initially argued that countries would continue to diverge (Pritchett, 1997) or polarize into two separate distributions, one rich and one poor (Quah, 1993; 1996). However, evidence showed that countries' incomes began to converge in the 1970s, with the trend accelerating in recent years (Kane, 2016). According to Hellebrandt and Mauro (2015), this resulted in a decline in global inequality, with the Gini coefficient dropping from 68.4 to 64.9 between 2003 and 2013. However, Milanovic and Lakner (2015) cautioned that the underreporting of high incomes may have biased this observed decline in global inequality. Changes in the global distribution of income also appeared to have been driven by China and India, the world's most populous countries. Accordingly, some have argued that the fall in global inequality was largely due to China's and India's growth, which overshadowed stagnant development in smaller island States and less populous countries (Bourguignon, 2011; DESA, 2015). To enable a better examination of regional income dynamics, this paper restricts its analysis to Asia and the Pacific, exploring whether countries' incomes in this region have converged or diverged since 1970.

III. DATA

In accordance with previous studies, data for this study was retrieved from the Penn World Table database (Feenstra, Inklaar and Timmer, 2015). As is the case with Penn World Table data, economic variables are denominated in a common currency, which allows for precise comparisons of countries' gross domestic product over time. Unfortunately, Penn World Table data on the Asia-Pacific region is limited. The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) lists 53 members and 9 associate members, of which 58 are located within Asia and the Pacific.² Data for the period of 1970 to 2014 was available for only 28 of the 58 countries located within the region. However, a number of these countries did not exist prior to 1990. If this start date is used instead, it is possible to expand the dataset to include Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan and Uzbekistan (members of the former Soviet Union), resulting in a total sample of 37 countries across 24 years. Taken together, this broader sample includes data for all Asian countries (except Afghanistan, the Democratic People's Republic of Korea and Timor-Leste), but provides for only limited observations in the Pacific region. Thus, although it may not be possible to make generalizations for Pacific countries, the research does accurately depict income dynamics within Asia. To balance breadth of countries with number of years, analyses

² France, the Netherlands, the United Kingdom of Great Britain and Northern Island and the United States of America are ESCAP members, but are located outside of the Asia-Pacific region.

have been conducted on both the limited sample reaching back to 1970 as well as the broader sample starting in 1990.³

For each available country, the real GDP per capita⁴ was used to measure mean income. While there are drawbacks and advantages to using national accounts data over household data, this paper chose to rely on GDP per capita figures due to data availability.⁵ The Penn World Table figures have been adjusted for purchasing power parity (PPP) and reported in 2011 United States dollars to enable accurate cross-country comparisons over time.

Countries are used as the primary unit of analysis in order to avoid a skewing of results in favour of large countries. The Asia-Pacific region is home to countries with both very large and very small populations. China, India and Indonesia account for two-thirds of the region's total population. Bhutan, by comparison, is home to less than 0.02 per cent of the population in Asia and the Pacific. Population-weighted estimates would thus likely skew results in favour of population-rich countries at the expense of small member States.

IV. METHODS

This paper sets out to present a descriptive and intuitive account of changes in relative income in Asia and the Pacific between 1970 and 2014. In order to do this, countries' GDP per capita is reported in relation to the GDP of Australia, and categorized into six income tiers, following Jones' (1997) income intervals (see table 1). As a developed country with one of the highest GDP per capita rates within the region, Australia was selected as the benchmark category, in order to capture whether countries in the Asia-Pacific region had grown closer together or further apart within recent years. Australia was favoured over other countries with higher GDP per capita due to its stable growth rate (see appendix, figure A).⁶ By reporting countries' income as a percentage of Australia's, it was possible to compare their relative income at different points in time, and thus visualize where and when convergence may have taken place. Table 1 outlines the different income tier classifications: Tier 6 reflects the poorest countries with a GDP per capita of less than or equal to 5 per cent of that of Australia; Tier 5 reflects countries between 5 and 10 per cent, and so forth (see table 1).

³ See appendix, table A for a full breakdown of data availability by ESCAP member States.

⁴ Expenditure-side real GDP at chained PPPs (in 2011 United States dollars).

⁵ See Pinkovskiy and Sala-i-Martin (2009) and Milanovic (2005) for a discussion on the drawbacks and advantages of using GDP per capita over household data.

⁶ Member States with a higher GDP per capita than that of Australia are Brunei Darussalam (1970, 1980, 1990, 2000, 2010, 2014), Hong Kong, China (2010, 2014), Japan (1990), Macao, China (2010, 2014), and Singapore (2000, 2010, 2014).

Table 1. Tier group classification cut-offs

Tier groups	Cut-off points
Tier 1	$0.80 < y$
Tier 2	$0.40 < y \leq 0.80$
Tier 3	$0.20 < y \leq 0.40$
Tier 4	$0.10 < y \leq 0.20$
Tier 5	$0.05 < y \leq 0.10$
Tier 6	$y \leq 0.05$

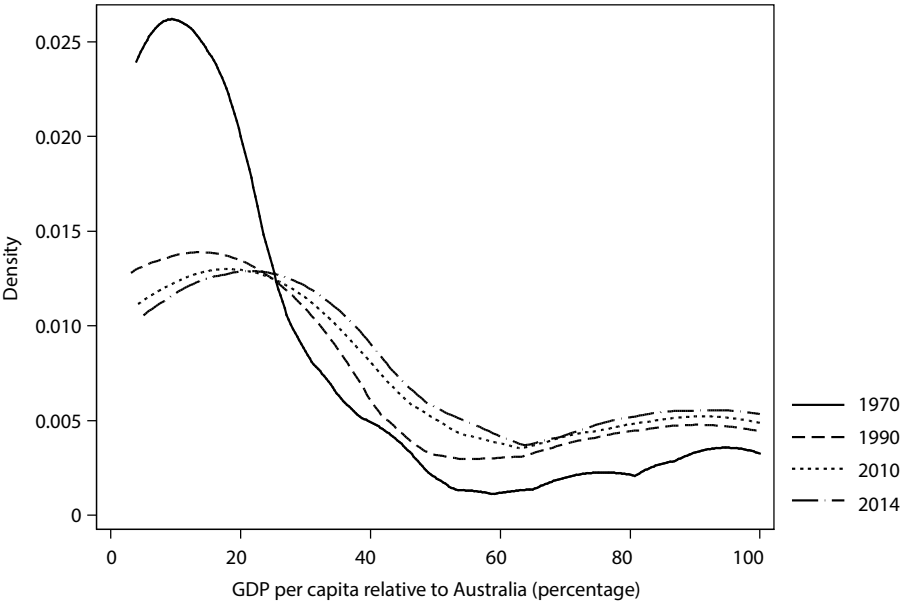
Source: Tier groups based on Jones (1997).

Note: “y” refers to a country’s income relative to that of the reference economy (Australia).

V. INCOME CONVERGENCE IN ASIA AND THE PACIFIC
BETWEEN 1970 AND 2014

Figure 1 depicts the relative regional income distribution in the Asia-Pacific region for the years 1970, 1990, 2010 and 2014. In 1970, the distribution of income across the region was noticeably unequal. The region was divided into two segments: a larger segment of poor countries, with an average income of less than 25 per cent of Australia, and a smaller segment of countries with income levels comparable to that of Australia. Over the years, income distribution converged from a twin peak into a flat distribution. With each decade, the number of relative poor countries fell significantly, converging into a flatter-shaped income distribution by 2014.

Figure 1. Relative GDP per capita in Asia and the Pacific, 1970 to 2014



VI. FROM 1970 TO 1990: EAST ASIAN GROWTH MIRACLE, STAGNANT SOUTH ASIA

Although figure 1 shows that the regional GDP per capita distribution flattens over years, with poorer countries moving closer to richer ones, it does not provide any information on the scale of convergence for individual member States. To better illustrate this, countries' relative position to Australia is visualized using Jones' (1997) income tier groups.

Table 2 compares the position of 28 countries across income tier groups between 1970 and 1990. In 1970, the region was comprised of mostly poor countries. Twenty out of twenty-eight countries were listed in the bottom three income tiers. By 1990, this number had slightly decreased to 17 countries, while the number of high income countries (Tiers 1 and 2) had doubled from 4 to 8 countries. By 1990, 10 out of the 28 countries had moved towards higher tier categories, while 3 countries had fallen to a lower category and 15 countries had remained within their tier group. Although progress did occur in some countries, it tended to manifest itself at higher levels, such that, while the top income group grew, so did the bottom group, each adding two countries.

During this period, the group of countries known as "the Asian Tigers" made the biggest strides. The Republic of Korea was able to increase its average income from 11 per cent to 45 per cent by 1990, elevating the country from the tier group 4 to tier group 2. Similarly, both Hong Kong, China and Macao, China increased their position from tier group 3 to tier group 1. Indonesia, Mongolia, the Maldives (Tier 5 to Tier 4), Fiji, Malaysia (Tier 4 to Tier 3), Singapore (Tier 3 to Tier 2) and Japan (Tier 2 to 1) also experienced strong economic growth. In contrast, no country among the lowest tier group was able to sufficiently increase its relative income to move to a higher income tier group. Rather, India and Cambodia both experienced a decrease in relative income, moving down to the lowest tier.

Table 2. Income tier matrix between 1970 and 1990

		1970							
		Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6		
1990	Tier 1	2	1	2				5	8
	Tier 2	1		1	1			3	
	Tier 3			1	2			3	
	Tier 4				4	3		7	
	Tier 5					4		4	
	Tier 6					2	4	6	
		3	1	4	7	9	4	28	
		4						20	

The matrix in table 2 reveals some convergence in countries' income between 1970 and 1990. Out of the 13 countries that had moved income tiers, 10 shifted to higher income tier groups. However, the periods of growth differed considerably by subregion: most of the income convergence occurred in countries from East and North-East Asia and, to a lesser extent, from countries in South-East Asia. Poorer countries by contrast, especially those from South and South-West Asia, were not able to keep up with the East Asia growth spell, and only two countries moved income tiers groups – India sank from Tier 5 to Tier 6, and the Maldives rose from Tier 5 to Tier 4.

Radelet, Sachs and Lee (2001) identify the factors responsible for East Asia's extraordinary economic growth between the 1970s and 1990s, and highlight what aspects enabled these economies to flourish while South Asian countries were left behind. First, economic policies were vital in determining growth performance: East Asia's institutional quality and trade openness facilitated strong economic growth. South Asia, by contrast, practiced isolationist trade policies, enacting high tariffs that reduced international trade and negatively impacted GDP per capita growth rates. Second, a growing working-age population, combined with higher life expectancy and high levels of secondary education allowed countries in East and North-East Asia to capitalize on their growth potential relative to South Asia (Bloom and Williamson, 1997). Third, in addition to sound economic policies and favourable social and demographic conditions, "Asian Tiger" countries tended to be small, with very open economies which, despite relatively few resources, had a well-educated workforce – all factors that contributed significantly to their impressive growth. Conversely, the lower life expectancy in South Asian countries, coupled with a slower growth in the working-age population and a higher overall population growth, placed the subregion at a comparative disadvantage.

VII. 1990 TO 2014: ACCELERATING CONVERGENCE THROUGHOUT ASIA AND THE PACIFIC

Between 1990 and 2014 the region experienced much stronger income convergence. Nineteen out of twenty-eight countries moved to a higher income tier group, while only one, Fiji, fell to a lower tier. All other countries experienced significantly stronger growth rates than Australia during this period, allowing them to rise by one or two income tiers in the matrix (table 3). Remarkably, while there was no movement among the lowest group between 1970 and 1990, all six countries in the lowest income tier transitioned to higher income groups between 1990 and 2014. In fact, the majority of gains were made at lower levels, with India, Lao People's Democratic Republic, Myanmar, Viet Nam (Tier 6 to Tier 4) and China (Tier 5 to Tier 3) each rising by two income tiers. At higher levels, Malaysia and Turkey rose from Tier 3 to Tier 2, and New Zealand, the Republic of Korea and Singapore joined the highest income group.

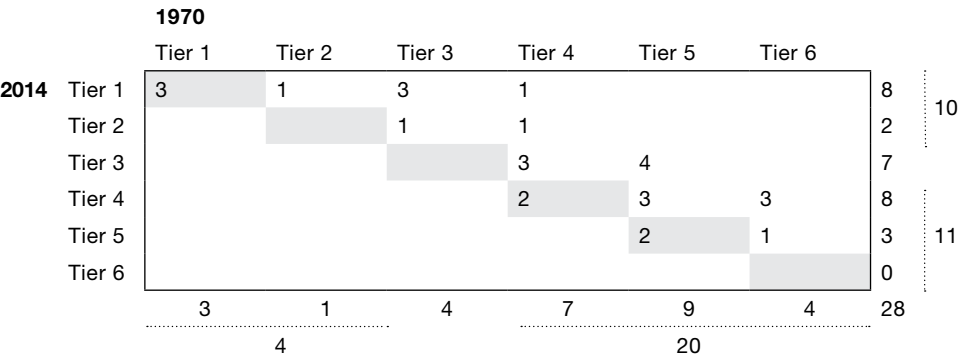
Table 3. Income tier matrix between 1990 and 2014

1990		Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6		
2014	Tier 1	5	3					8	10
	Tier 2			2				2	
	Tier 3				6	1		7	
	Tier 4			1	1	2	4	8	11
	Tier 5					1	2	3	
	Tier 6							0	
		5	3	3	7	4	6	28	
		8			17				

Countries in South and South-West Asia fared poorly between 1970 and 1990, with only one country moving up to a higher income tier. However, this changed between 1990 and 2014, when eight out of the nine South and South-West Asian countries moved up to higher tier groups, catching up with the impressive growth performance of the economies in East and North-East Asia and South-East Asia. Improved economic policies and an increasing openness to the world market allowed many South and South-West Asian countries to capitalize on their growth potential, and slowly catch up to the growth rates of other countries in the region. Shifts in demographic dynamics also meant that the working-age population grew during this time, delivering a similar economic boost that had facilitated growth in East Asia two decades earlier. Meanwhile, the formerly fast-growing economies of Hong Kong, China, and the Republic of Korea were beginning to slow down, as their “catching up” phase concluded (Barro, 1991). A comparably stagnant economic growth period in Australia in recent years further added to this convergence process. As a result, the strong growth of countries in the lowest income category, combined with a slowing of growth at higher levels, has led to a decrease income inequality between countries in the Asia-Pacific region, with the level of convergence accelerating over the last two decades (Kane, 2016).

Comparing the relative income distribution in 2014 to that in 1970, there is not a single country that fell to a lower income tier. The rate of convergence is evidenced by the speed at which countries have moved towards higher income tiers over the 44-year span: 21 out of 28 countries moved to higher income tiers, of which more than half transitioned by two or more income tiers. This positive development points to the growth miracle that has taken place in many Asian countries. Since 1970, countries in the ESCAP region have benefitted from a range of social reforms, trade agreements, industrial development and sociodemographic shifts that have facilitated progressive growth and brought nations closer together, shrinking the income gap between rich and poor countries in the region.

Table 4. Income tier matrix between 1970 and 2014

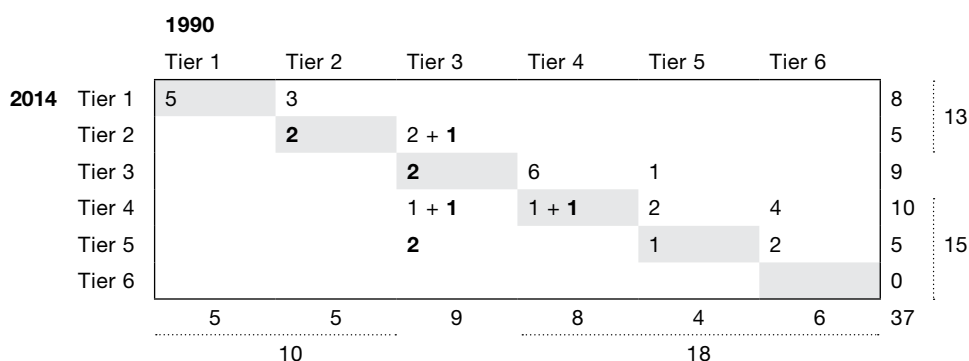


VIII. INCLUDING NORTH AND CENTRAL ASIA:
INCOME CONVERGENCE, 1990-2014

A substantial number of ESCAP member States in North and Central Asia did not exist prior to the collapse of the Soviet Union. As a result, nine North and Central Asian countries – Armenia, Azerbaijan, Georgia, Russian Federation, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekista – were introduced into the analysis from 1990 to 2014, and are highlighted in bold in table 5.

Out of the nine countries, five of them – Kazakhstan, Russian Federation, Azerbaijan, Georgia and Uzbekistan – remained within their income tier. Only one country, Turkmenistan, managed to move up to a higher income tier group by 2014, migrating from Tier 3 to Tier 2, while doubling its GDP per capita. Three countries’ relative GDP per capita declined during the same period: Armenia’s average income declined slightly relative to Australia, with the country falling from Tier 3 to Tier 4; Kyrgyzstan and Tajikistan both suffered strong economic losses after 1990 with their relative income falling from 28 and 25 per cent to 8 and 6 per cent respectively, and dropping from Tier 3 to Tier 5 (table 5). Economies in North and Central Asia suffered severe economic shocks following the collapse of the Soviet Union, and generally performed worse than other countries in the region.

Table 5. Change in relative income tiers between 1990 and 2010, additional countries



IX. DECLINES IN RELATIVE INEQUALITY, INCREASES IN ABSOLUTE INEQUALITY IN THE REGION

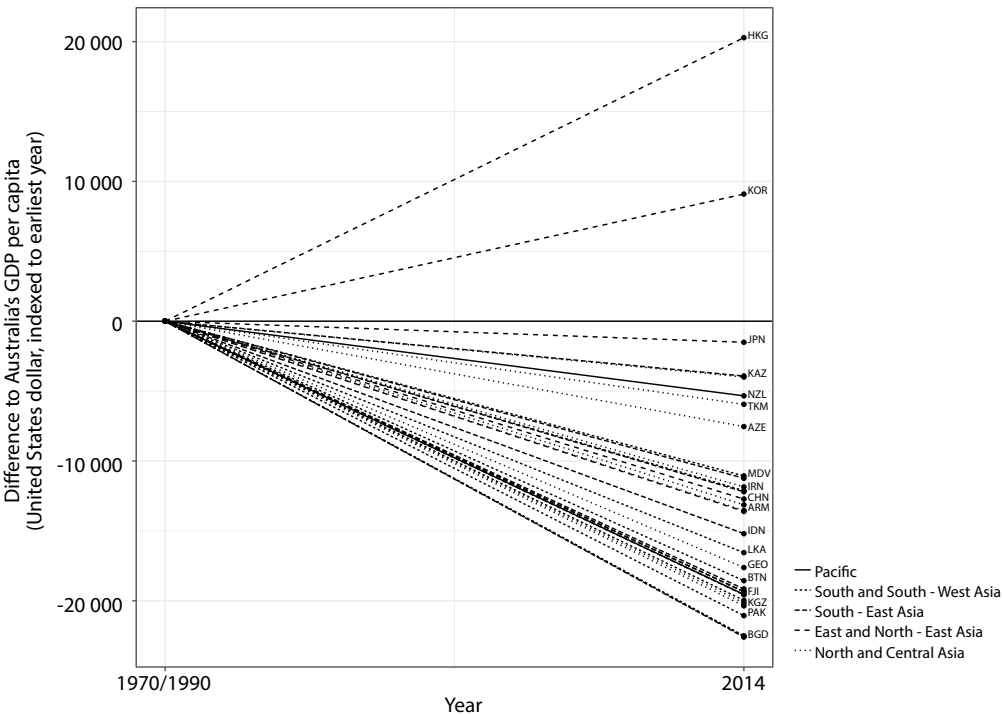
Despite reduced economic growth in North and Central Asia, regional income in Asia and the Pacific converged, with poorer countries' average income generally growing at a greater rate than that of richer countries. While this can be seen as an improvement and a cause for celebration, it is important to acknowledge that this rests on a relative concept of income inequality. Individuals' understanding of inequality, however, is not only based on relative differences, but is also tied to absolute gaps in earnings and incomes (Amiel and Cowell, 1992; 1999). To illustrate this point, consider the following: the doubling of two individuals' income, from \$10 to \$20 for person A, and \$100 to \$200 for person B, respectively, would have no effect on relative income inequality between them – in both cases, person B earns ten times as much as person A. Yet, it is not unreasonable to assume that the second scenario (i.e. \$20 and \$200) may be perceived as far more unjust than the first, due to the large increase in the absolute income gap. The growing international debate about a rising income disparity between the rich and poor is a case in point (Niño-Zarazúa, Roope and Tarpe, 2017). Acknowledging these influences, many academics have called for a broadening of the debate on inequality beyond relative considerations (Ravaillon, 2003; Atkinson and Brandolini, 2010; Sreenivasan and Dhairiyarayar, 2013; Niño-Zarazúa, Roope and Tarpe, 2017).

To briefly visualize the ongoing disparity in absolute incomes between rich and poor countries, figure 2 plots changes in countries' income gap relative to Australia between 1970 (1990 for North and Central Asia) and 2014. Income differences at the earliest year were indexed at zero to allow for better comparisons over time. Figures

below zero indicate that the difference between a country's and Australia's GDP per capita has increased between 2014 and 1970/1990, while a figure above zero means that there has been a reduction in absolute income differences.

As shown in figure 2, the absolute gap has increased in nearly all countries during the period under consideration. This may seem surprising at first, considering the convergence of relative regional income since 1970. However, large initial differences between Australia's GDP per capita and that of most other countries in the region means that, despite its comparably slow growth, Australia's GDP per capita nevertheless grew more in absolute terms than most countries in the region.

Figure 2. The absolute income gap to Australia has increased unfavourably for most countries in Asia and the Pacific, earliest year and 2014



Note: Country codes and names are as follows: ARM - Armenia, AZE - Azerbaijan, BGD - Bangladesh, BTN - Bhutan, CHN - China, FJI - Fiji, GEO - Georgia, HKG - Hong Kong, China, IDN - Indonesia, IRN - Islamic Republic of Iran, JPN - Japan, KAZ - Kazakhstan, KGZ - Kyrgyzstan, KOR - Republic of Korea, LKA - Sri Lanka, MDV - Maldives, NZL - New Zealand, PAK - Pakistan, TKM - Turkmenistan.

Following Niño-Zarazúa, Roope and Tarpe (2017), this example illustrates the implications that different ways of reporting income inequalities can have on conversations surrounding this issue: in relative terms, income inequality between countries in Asia and the Pacific has reduced since the 1970s. However, insufficient relative convergence, together with high initial differences in GDP per capita between rich and poor countries have meant that, despite a reduction in relative inequality, absolute differences have increased throughout this period. China, the Asian-Pacific “economic miracle par excellence”, experienced an extraordinarily impressive annual GDP growth rate of 6.1 per cent in 2016 (World Bank, 2016). However, despite this exceptional performance, it would take China an additional 36 years of maintaining this growth rate to catch up to the GDP per capita level of Australia in 2016. These absolute gaps need to be taken into account when writing about changes in inequality dynamics, even if the focus is on a shift in relative terms. Clearly, societal understanding of what constitutes “fair” and “unfair” income distributions will also rest on absolute differences.

X. CONCLUSION

This paper has examined the extent to which income inequality among countries in Asia and the Pacific has converged since the 1970s. By analysing countries’ GDP per capita relative to that of Australia, the paper reveals that, over the past four and a half decades, the region has indeed been growing closer together. While Asia and the Pacific includes a variety of countries whose GDP per capita have grown remarkably during the period studied, this paper has also shown that other countries with less impressive growth records have consistently managed to catch up to the leading economy.

The analysis has also highlighted substantial shifts in subregional dynamics. Countries that were high performing in the 1970s, such as Japan, the Republic of Korea, or Hong Kong, China, have seen their growth rates stabilize, after having completed a “catching up” convergence process (Barro, 1991; Barro and Lee, 1994; Stokey, 2014). Moreover, while East and North-East Asian and South-East Asian economies grew rapidly between 1970 and 1990 due to favourable socioeconomic and demographic dynamics, South and South-West Asian countries have only recently capitalized on their growth potential and, as such, are arguably in the process of catching up to the growth miracle in other countries. Despite the setback of some North and Central Asian economies, current patterns suggest considerable convergence in relative incomes in Asia and the Pacific since 1970.

In attempting to answer the second component of SDG 10, the study finds that, on a regional level, relative inequality among countries has fallen. Thus, the idea of a diverging “twin peaks” phenomenon (Quah 1993; 1996), in which world income

distribution increasingly diverges into rich and poor country groups, has not held true within the Asian-Pacific context. Rather, relative inequality has been declining, with poorer countries catching up to the income levels of richer countries.

Relative considerations of income inequality, however, neglect the large, and often growing, absolute gaps between countries' GDP per capita. While relative inequality fell during the study period, the absolute gap, in relation to Australia, increased in almost all countries at the same time. This means that, notwithstanding the comparably slower growth in Australia's GDP per capita, and the faster economic growth in poorer countries', the absolute income disparity continued to widen. Effects of inequality, especially those related to social cohesion, trust, unrest and instability, rest heavily on subjective feelings of injustice, which are in part tied to absolute differences in income. These absolute differences need to be reflected in research on income inequality.

Before concluding this paper, it is important to note its limitations. First, this is a descriptive account of income dynamics in Asia and the Pacific between 1970 and 2014, and therefore makes no claim to the mechanisms underlying this convergence process. Second, the extent and nature of convergence observed are naturally conditional on the benchmark economy. The reasons for selecting Australian GDP per capita as opposed to that of another economy are, as outlined above, due to it having one of the highest average incomes in the region throughout the period of analysis, combined with a stable annual growth rate. Lastly, this paper reveals nothing about within-country inequality. With many countries in the Asia-Pacific region experiencing an increase in income inequalities within their national borders (ESCAP, 2017), it is increasingly important to separate changes in regional income distribution into between-country and within-country dynamics. Bourguignon (2011) decomposes global inequality into between and within-country inequality, claiming that

it is remarkable that, despite rising within-country inequality, global inequality is decreasing at a fast pace. The problem, however, is that what is happening at the national level may be more important from a political economy perspective than what is happening at the global level. An increase in inequality at the national level may become a real obstacle to global inclusion and global development even though global inequality is decreasing (Bourguignon, 2011, p.13).

This paper sets the stage for future policy discussions on inequality from multiple vantage points. In relative terms, regional inequality has decreased, while in absolute terms it has increased. At the same time, within-country dynamics suggest that those countries experiencing the largest increases in mean income have also experienced the largest increase in inequality within their national borders.

REFERENCES

- Amiel, Yoram, and Frank Cowell (1992). Measurement of income inequality: experimental test by questionnaire. *Journal of Public Economics*, vol. 47, No. 1, pp. 3-26.
- _____ (1999). *Thinking about Inequality*. Cambridge, MA: Cambridge University Press.
- Atkinson, Anthony B., and Andrew Brandolini (2010). On analysing the world distribution of income. *World Bank Economic Review*, vol. 24, No. 1, pp. 1-37.
- Barro, Robert J. (1991). Economic growth in a cross section of countries. *The Quarterly Journal of Economics*, vol. 106, No. 2, pp. 407-443.
- Barro, Robert J., and Jong-Wha Lee (1994). Sources of economic growth. *Carnegie-Rochester Conference Series on Public Policy*, vol. 40, No.1, pp. 1-46.
- Bloom, David E., and Jeffrey G. Williamson (1997). Demographic transitions and economic miracles in emerging Asia. *World Bank Economic Review*, vol. 12, No. 3, pp. 419-455.
- Bourguignon, F. (2011). *A Turning Point in Global Inequality... And Beyond?* Washington, D.C.: World Bank. Available from http://siteresources.worldbank.org/EXTABCDE/Resources/7455676-1292528456380/7626791-1303141641402/7878676-1306270833789/Parallel-Session-6-Francois_Bourguignon.pdf.
- Bourguignon, F., and C. Morrison (2002). Inequality among world citizens, 1820–1992. *American Economic Review*, vol. 92, No. 4, pp. 727-974.
- Feenstra, Robert C., Robert Inklaar, and Marcel P. Timmer (2015). The next generation of the Penn World Table. *American Economic Review*, vol. 105, No. 10, pp. 3150-3182. Available from www.ggdc.net/pwt.
- Hellebrandt, Tomáš, and Paolo Mauro (2015). The future of worldwide income distribution. *World Bank Paper Series*, vol. 15, No. 7, pp. 1-44.
- Jones, Charles I. (1997). On the evolution of the world income distribution. *Journal of Economic Perspectives*, vol. 11, No. 3, pp. 19-36.
- Kane, Tim (2016). Accelerating convergence in the world income distribution. Economics Working Paper, No. 16102, pp.1-15. Standord, CA: Hoover Institution.
- Milanovic, Branco (2005). *World Apart: Measuring Global and International Inequality*. Princeton: Princeton University Press.
- _____ (2012a). Global income inequality by the numbers: in history and now. Policy Research Working Paper, No. 6259, pp. 1-28. Washington, D.C.: World Bank. Available from <https://openknowledge.worldbank.org/handle/10986/12117?locale-attribute=en>.
- _____ (2012b). Globalization and inequality. In *The Globalization of the World Economy*, Casson, Mark, ed. Cheltenham, United Kingdom: Elgar Research Collection.
- Milanovic, Branco, and Christoph Lakner (2015). Global income distribution: from the fall of the Berlin Wall to the Great Recession. Policy Research Working Paper, No. 6719, pp. 1-60. Washington, D.C.: World Bank. Available from <https://openknowledge.worldbank.org/handle/10986/16935>.

- Niño-Zarazúa, Miguel, Laurence Roope, and Finn Tarpe (2017). Global inequality: relatively lower, absolutely higher. *Review of Income and Wealth*, vol. 63, No. 4, pp. 661-684.
- Pinkovskiy, M., and X. Sala-i-Martin (2009). Parametric estimations of the world distribution of income. NBER Working Paper Series, No. 15433. Cambridge, MA.: The National Bureau of Economic Research.
- Pritchett, Lant (1997). Divergence, big time. *Journal of Economic Perspectives*, vol. 11, No. 3, pp. 3-17.
- Quah, Danny (1993). Empirical cross-section dynamics in economic growth. *European Economic Review*, vol. 37, No. 2, pp. 426-434.
- _____ (1996). Twin peaks: growth and convergence in models of distribution dynamics. *Economic Journal*, vol. 106, No. 437, pp. 1045-1055.
- Radelet, Steve, Jeffrey Sachs, and John-Wah Lee (2001). The determinants and prospects of economic growth in Asia. *International Economic Journal*, vol. 15, No. 3, pp. 1-29.
- Ravallion, Martin (2003). The debate on globalization, poverty and inequality: why measurement matters. *International Affairs*, vol. 79, No. 4, pp. 739-753.
- Roser, Max (2019). Global economic inequality. Our World in Data. Available from <https://ourworldindata.org/global-economic-inequality>. Accessed 15 March 2018.
- Stokey, Nancy L. (2014). Catching up and falling behind. *Journal of Economic Growth*, vol. 20, No. 1, pp. 1-36.
- Sreenivasan, Subramanian and Jayaraj Dhairiyarayar (2013). The evolution of consumption and wealth inequality: a quantitative assessment. *Journal of Globalization and Development*, vol. 4, No. 2, pp. 253-281.
- United Nations, Department of Economic and Social Affairs (DESA) (2015). Income convergence or persistent inequalities among countries. Development Issues, No. 5. New York. Available from www.un.org/en/development/desa/policy/wess/wess_dev_issues/dsp_policy_05.pdf.
- United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP) (2017). *Sustainable Social Development in Asia and the Pacific: Towards a People-Centred Transformation*. Sales No. E.17.II.F.15.
- _____ (2018). *Inequality in the Era of the 2030 Agenda for Sustainable Development*. Sales No. E.18.II.F.13.
- World Bank (2016). GDP per capita growth (annual %). World Development Indicators. The World Bank Group. Available from <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?locations=CN>. Accessed 15 March 2018.

APPENDIX

Table A. Data availability for ESCAP countries

ESCAP countries	Penn World Table	
	1970	1990
Afghanistan	×	×
American Samoa	×	×
Armenia	×	✓
Australia	✓	✓
Azerbaijan	×	✓
Bangladesh	✓	✓
Bhutan	✓	✓
Brunei Darussalam	✓	✓
Cambodia	✓	✓
China	✓	✓
Cook Islands	×	×
Fiji	✓	✓
French Polynesia	×	×
Georgia	×	✓
Guam	×	×
Hong Kong, China	✓	✓
India	✓	✓
Indonesia	✓	✓
Iran, Islamic Republic of	✓	✓
Japan	✓	✓
Kazakhstan	×	✓
Kiribati	×	×
Korea, Dem. People's Rep.	×	×
Korea, Republic of	✓	✓
Kyrgyzstan	×	✓
Lao People's Dem. Rep.	✓	✓
Macao, China	✓	✓
Malaysia	✓	✓
Maldives	✓	✓
Marshall Islands	×	×

Table A. Data availability for ESCAP countries (continued)

ESCAP countries	Penn World Table	
	1970	1990
Micronesia, Fed. States of	×	×
Mongolia	✓	✓
Myanmar	✓	✓
Nauru	×	×
Nepal	✓	✓
New Zealand	✓	✓
New Caledonia	×	×
Niue	×	×
Northern Mariana Islands	×	×
Papua New Guinea	×	×
Pakistan	✓	✓
Palau	×	×
Philippines	✓	✓
Russian Federation	×	✓
Samoa	×	×
Singapore	✓	✓
Solomon Islands	×	×
Sri Lanka	✓	✓
Tajikistan	×	✓
Thailand	✓	✓
Timor-Leste	×	×
Tonga	×	×
Turkey	✓	✓
Turkmenistan	×	✓
Tuvalu	×	×
Uzbekistan	×	✓
Vanuatu	×	×
Viet Nam	✓	✓

Figure A. GDP per capita growth rates for selected countries, 1970 – 2014

