



Investing in rural people

Asia's rural-urban disparity in the context of growing inequality

by
Katsushi S. Imai
Bilal Malaeb

27 IFAD
RESEARCH
SERIES



The IFAD Research Series has been initiated by the Strategy and Knowledge Department in order to bring together cutting-edge thinking and research on smallholder agriculture, rural development and related themes. As a global organization with an exclusive mandate to promote rural smallholder development, IFAD seeks to present diverse viewpoints from across the development arena in order to stimulate knowledge exchange, innovation, and commitment to investing in rural people.

The opinions expressed in this publication are those of the authors and do not necessarily represent those of the International Fund for Agricultural Development (IFAD). The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of IFAD concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The designations “developed” and “developing” countries are intended for statistical convenience and do not necessarily express a judgement about the stage reached in the development process by a particular country or area.

This publication or any part thereof may be reproduced for non-commercial purposes without prior permission from IFAD, provided that the publication or extract therefrom reproduced is attributed to IFAD and the title of this publication is stated in any publication and that a copy thereof is sent to IFAD.

Authors:

Katsushi S. Imai, Bilal Malaeb

© IFAD 2018

All rights reserved

ISBN 978-92-9072-841-2

Printed July 2018



Asia's rural-urban disparity in the context of growing inequality

by
Katsushi S. Imai
Bilal Malaeb



27 IFAD
RESEARCH
SERIES

Acknowledgements

This study is funded by the Asia and the Pacific Division (APR) of the International Fund for Agricultural Development (IFAD). The authors thank Fabrizio Bresciani, Raghav Gaiha and two anonymous reviewers for their advice. The views expressed are, however, personal and not necessarily those of the organizations to which we are affiliated or IFAD.

About the authors

Katsushi Imai is Professor in Development Economics in the Economics Department of the School of Social Sciences at the University of Manchester. He taught at Oxford as a postdoctoral fellow at the Centre for the Study of African Economies (CSAE) and Senior Associate Member at St Antony's College, and at Royal Holloway, University of London, as Lecturer in Economics, before joining Manchester in 2004.

Bilal Malaeb is currently a postdoctoral research officer at the Oxford Poverty and Human Development Initiative (OPHI) at the University of Oxford and a research fellow in Economics at the University of Southampton. Previously, he has served as a lecturer at the Global Development Institute and as a graduate teaching assistant in the Economics Department at the University of Manchester.

Oversight: Paul Winters, Associate Vice-President, ad interim, Strategy and Knowledge Department, and Director, Research and Impact Assessment Division.

Advisory Board: Fabrizio Bresciani, Shirley Chinien, Edward Heinemann, Bruce Murphy, Richard Pelrine, Lauren Phillips, Paolo Silveri and Abdelkarim Sma.

Editorial Management Team: Rui Benfica, Helen Gillman and Anja Lesa.

Table of contents

Acknowledgements	2
Abstract	4
1 Introduction	5
2 Changes in income distribution in Asia: Overview	7
3 Rural-urban income gaps.....	12
4 Cross-country evidence.....	15
5 The human resource gap between rural and urban areas.....	19
6 Conclusions and policy implications	20
References	22
Appendix 1: Positions of China and India in changes in poverty and GDP per capita in the region	24
Appendix 2: Graphs showing the distribution of income per capita	25
Appendix 3: Data used for the cross-country regression.....	29

Abstract

This study offers empirical evidence on the rural-urban gap in the context of growing inequality in Asia. First, China and India explain the trends in regional inequality given their large populations, signifying their importance as major contributors. Overall, China's income inequality is characterized by rural-urban disparity, but the inequality within rural and within urban areas has worsened, although the country has experienced very high economic growth. India is mainly characterized by high inequality within urban areas, despite a sharp reduction in urban poverty. India's rural-urban income gap has narrowed in recent years. We also find that the rural-urban income gap has narrowed in many other countries, such as Thailand and Viet Nam. Second, our econometric results on the agricultural and non-agricultural income gap suggest that a higher non-agricultural growth rate tends to widen the rural-urban gap over time, while agricultural growth is unrelated to the rural-urban gap. Third, the rural-urban human resources gap in terms of educational attainment has increased in both China and India. Policies that promote agricultural growth and rural education are deemed important not only for reducing rural poverty but also for narrowing the rural-urban human resources gap.

1 Introduction

Structural transformation of the rural economy – “rural transformation” hereafter – is characterized by (i) urbanization and development of small towns/cities and resulting changes in the rural economy, (ii) growth of the rural non-farm economy, (iii) dietary diversification, (iv) a revolution in supply chains and retailing, and (v) transformation of the agricultural sector in rural areas (Reardon and Timmer, 2014; Imai, Gaiha and Bresciani, 2016). As a country experiences urbanization, rural-urban disparity tends to increase. If, for example, labour productivity in rural areas rises at a slower rate than in urban areas, the disparity between rural and urban areas will widen even if the proportions of the population in rural and urban areas remain constant. If this comes with an increase in the proportion of the population or labour force in urban areas, overall inequality tends to increase much faster. Different countries have undergone different processes of rural transformation with different speeds of change in labour, productivity and population in rural and urban areas, resulting in different patterns of change in inequality at national and subnational levels.

Other aspects of rural transformation may be associated with inequality and rural-urban disparity in more complex ways. Growth of the rural non-farm economy tends to promote the growth of the rural economy as a whole and reduce poverty significantly, as shown by Imai, Gaiha and Thapa (2015) for Viet Nam and India. However, whether or not this reduces rural-urban disparity is unclear, as growth of the rural non-farm sector may be associated with an interaction between farm and non-farm sectors, industrialization and/or the growth of service and retail sectors at the national level.^{1, 2}

With this background in mind, it is worthwhile discussing why rural-urban disparity is important in analysing overall inequality in developing countries. There is often a dichotomy between rural and urban areas in developing countries – in particular in spacious countries, such as China and India – and these areas are structurally different. For instance, the labour and output markets are geographically segmented. There is often a political dichotomy between rural and urban areas. For instance, in China people in rural areas cannot easily settle in urban areas, as *hukou*, records in a government system of household registration, cannot be changed easily in the short run. As rural areas tend to be less affected by the process of globalization – for instance as a result of their geographical remoteness – the

1. Imai, Cheng and Gaiha (2017) found that agricultural value added per capita – specified as an endogenous variable in the model – significantly reduced poverty headcount ratio, poverty gap and poverty gap squared defined at the international poverty thresholds, US\$1.25 and US\$2.00, as well as the Gini coefficient calculated by Living Standards Measurement Study (LSMS) household datasets.
2. Dietary diversification – which is associated with nutritional improvement – may take place much faster in urban areas than in rural areas and may increase the rural-urban disparity in nutritional conditions. Nutritional disparity is more complex than income disparity, as higher intakes of calories and fats lead to obesity (Gaiha, Jha and Kulkarni, 2014; You, Imai and Gaiha, 2016). While the rural-urban disparity in non-income aspects of welfare, such as nutrition, is important, the focus of this paper is income disparity between rural and urban areas.

traditional norms and cultures of the country are more likely to persist in rural areas than in urban areas. On the other hand, because of the structural transformation that occurs where transportation infrastructure develops and the cost of migration falls, the distinction between rural and urban areas is becoming less clear. Given that reduction in inequality within and among countries is an important development goal, as Sustainable Development Goal (SDG) 10 implies, a statistical investigation of the relationship between rural-urban disparity and national inequality will help to characterize the former and provide some insight into possible causes of changes in the latter.

The focus of this paper is on if the disparity between rural and urban areas in Asia has increased and, if so, the underlying reasons for the change. Of particular importance are farm and non-farm linkages, whether or not higher rural incomes are in part the result of more diversified livelihoods and the emergence of high-value chains, and the extent to which these have reduced rural-urban disparities and dampened migration. In addition to easier access to credit to strengthen farm and non-farm linkages, as well as the participation of smallholders in high-value chains, other major policy concerns relate to if remittances could be allocated to more productive uses in rural areas, through higher risk-weighted returns – specifically, if returns could be increased and risks reduced in agriculture and the rural non-farm sector. This study will also discuss the policy implications of growing farm and non-farm disparities.

It is not possible to investigate these complex factors using one model, so a number of selected statistical analyses of rural-urban income disparities using cross-country panel data and household data were carried out.

This study, however, was constrained by the limited availability of data. Given the data constraints, the following research questions were asked: (i) How has regional, national and subnational (i.e. rural and urban) inequality changed in Asia (with a particular focus on China and India, the two most populous countries in the region)? (ii) What are the possible factors explaining the rural-urban disparity and if non-agricultural growth or agricultural growth widens the rural-urban gap and inequality over time in Asia? And (iii) has the rural-urban human resources gap in terms of educational attainment increased in China and India?

This paper is organized as follows. The next section reviews the statistics to discuss the shifts in Asia's and subregional income distributions, with a focus on whether or not China and India are largely responsible for these shifts. Section 3 further analyses the cross-country data to see whether or not rural-urban income gaps have narrowed; what sort of factors are associated with the narrowing gap; and whether dispersion of earnings within rural non-farm activities has narrowed or widened. Section 4 identifies factors associated with narrowing income gaps and migration. Section 5 reviews the human resource gap between rural and urban areas using descriptive statistics. The final section offers concluding observations and assesses policy implications.

2 Changes in income distribution in Asia: Overview

The overall change in Asia's income distribution is intricately associated with the changes in geographical categories within Asia, such as at subregional (e.g. South Asia), national (e.g. India) and subnational (e.g. state level within India) levels. In the context of developing countries, the income gap between rural and urban areas and changes in it will influence income distribution at all of these geographical levels.

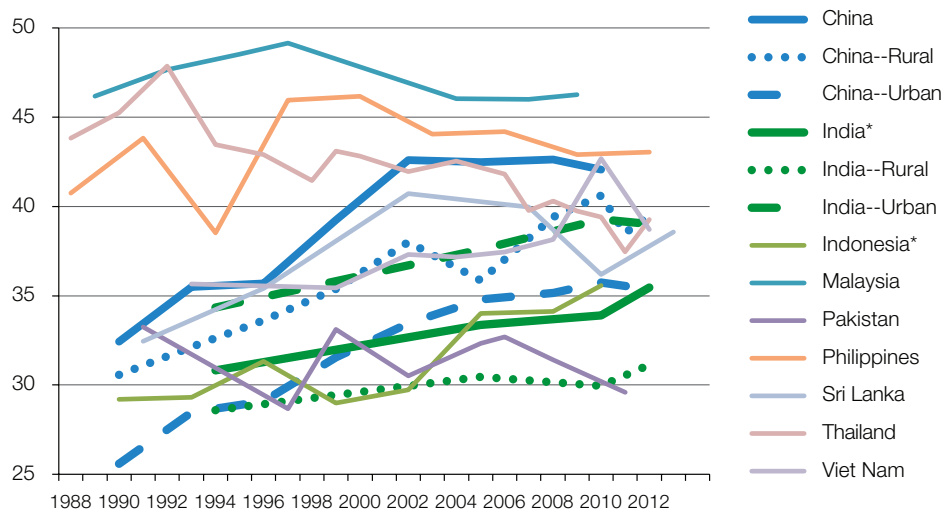
A recent Overseas Development Institute report suggests that rural wages have increased substantially in most Asian countries, with some acceleration from the mid-2000s (e.g. in Bangladesh, China and India) (Wiggins and Keats, 2014). This may have been partly due to a decrease in population – as a result of a decline in fertility rates – and an increase in manufacturing growth rate, which has accelerated the rise in rural non-farm wages (Wiggins and Keats, 2014). Whether or not the rise in rural wages has led to a decrease in the rural-urban wage gap is an empirical question, but, using the data from India's National Sample Survey, Hnatkovskay and Lahiriz (2014) found a significant reduction in wage differences between individuals in rural and urban India during the period from 1983 to 2010. The increase in rural wages may not necessarily imply an increase in rural income (or net profits), as it will reflect increased production costs in both agricultural and non-agricultural sectors. The increase in rural wages may also be linked with higher food prices, which may limit the benefit for poor households.

Our main interest lies in the rural-urban gap in overall income, not wage levels and so this section provides evidence on the changes in Asia's income distribution. We first evaluate whether or not large countries (i.e. China and India) bear the main responsibility for the shifts in income distribution in Asia. To provide an overall summary of inequality in Asia, we will review the trends in selected measures such as the Gini coefficient (figure 1), mean income (figure 2), poverty headcount (figure 3) and the poverty gap (figure 4) in selected Asian countries. It should be noted that the selection of the countries was guided by the availability of data.

Figure 1 illustrates the trends in the Gini coefficient during the last three decades across various Asian countries, enabling us to see if the trends in the Gini coefficient for China and India – disaggregated into rural and urban areas – are similar or dissimilar to those for other countries.

It can be seen that the national Gini coefficient for China increased sharply from 33 per cent to 42 per cent between 1998 and 2001 and remained at a high level, around 42 to 43 per cent, with a small reduction in 2008-2012. It is striking to find that the national Gini remained higher than the rural Gini and the urban Gini, implying that rural-urban disparity remained

Figure 1 The Gini coefficient (%) for selected Asian countries from 1988 to 2012, based on Povcal data from the World Bank (authors' computations)



high in China.³ It should be noted that inequality was much higher in rural than in urban areas in China. The rural income Gini coefficient in China increased from 31 per cent to 41 per cent from 1989 to 2009, with some fluctuations, but a significant decrease was recorded in 2009-2011. This is important, as rural poverty has reduced over time in China (Imai and You, 2014). It can be inferred that economic growth has resulted in a reduction in rural poverty over the years, but that this growth was not pro-poor in rural China. On the other hand, the urban Gini coefficient, although lower than the rural Gini, constantly and significantly increased from 25 to 26 per cent in 1989 to 35 to 36 per cent in 2011. Overall, China's inequality is characterized by rural-urban disparity, and inequality within rural and within urban areas has constantly worsened, while the country has experienced a very high level of economic growth.

India's Gini coefficient for expenditure at the national level has also increased steadily, from 31 per cent to 36 per cent, from 1993 to 2011, but the average annual increase in the Gini coefficient (0.28 per cent) is smaller than that of China (0.39 per cent, where the national Gini for expenditure increased from 35.5 per cent to 42.5 per cent in the same period). Indian inequality is characterized by the high Gini coefficient in urban areas, rather than rural-urban disparity, because the urban Gini is higher than the national Gini which in turn is higher than the rural Gini, with the order of the three unchanged over time. The urban Gini coefficient in India increased from 34 per cent to 39 per cent, while the rural Gini marginally increased, from 28 per cent to 31 per cent, in 1993-2011. This is in sharp contrast with poverty trends in India in the same period (1993-2011), during which the national poverty headcount fell from 45.3 per cent to 29.8 per cent (-15.5 per cent), the urban poverty headcount fell from 31.8 per cent to 20.9 per cent (-10.9 per cent) and the rural poverty headcount fell from 50.1 per cent to 33.8 per cent (-16.3 per cent), with broadly similar trends observed for the poverty gap and the poverty gap squared (Himanshu and Sen, 2014). Overall, India

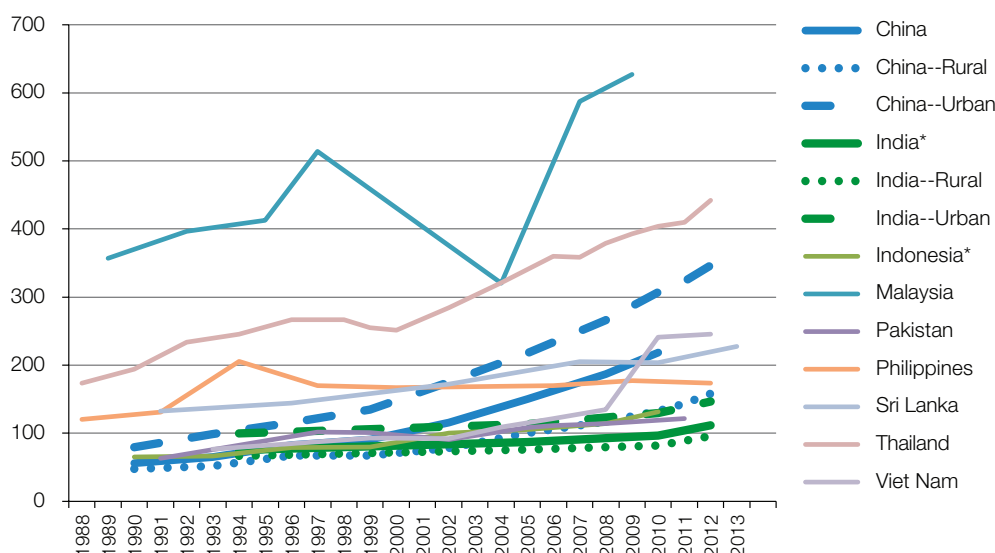
3. More rigorously, the Theil indices should be used for national household data to decompose them into subnational components, as in Kang and Imai (2012). Decomposing the Gini coefficient is feasible, but it is not a simple procedure, since the functional form of inequality indices is not additively separable in incomes (Araar, 2006). Under some assumptions, Yang (1999) decomposed the Gini coefficient for household income in two provinces in China (Sichuan and Jiangsu) and found that rural-urban inequality dominates within-rural and within-urban inequality components.

is characterized by high inequality within urban areas despite a sharp reduction in urban poverty. Indian economic growth reduced urban poverty, but the urban rich benefited more in relative terms.

Given the huge populations of China and India, the steady increase in income inequality in these countries is likely to be a leading cause of the overall shift in income distribution in Asia, while rural-urban disparity – as well as high and increasing inequality in rural China and high and increasing inequality in urban India – characterizes overall inequality at national levels.

This does not discount altogether the roles played by Malaysia, the Philippines, Thailand and Viet Nam, each of which shows comparatively high levels of inequality with an overall increasing trend during the period between 1990 and 2010. For instance, Malaysia's national Gini remained very high, between 46 and 48 per cent. The urban Gini coefficient reduced from 44.0 per cent to 43.9 per cent and the rural Gini rose from 40.9 per cent to 42.6 per cent in 2004-2009, implying that within-urban and within-rural inequality explain the high national Gini coefficient.⁴ Thailand has experienced an overall decreasing trend in the national Gini coefficient (44 per cent to 39 per cent), with some fluctuations. As in Malaysia, both the urban Gini and the rural Gini remained high in Thailand, with the former at slightly higher levels than the latter (in 1999-2012: urban, 40.5 to 38.0 per cent; rural, 35.8 to 36.2 per cent). The Philippines also recorded a relatively high Gini coefficient (39 per cent to 46 per cent) with fluctuations in 1990-2010, with a similar pattern in the disaggregated Gini coefficients (in 2000-2011: urban, 44.4 to 41.1 per cent; rural, 36.9 to 39.1 per cent). The national Gini of Sri Lanka increased from 33 per cent to 38 per cent, with the urban Gini rising from 38.4 per cent to 39.9 per cent and the rural Gini rising from 33.1 per cent to 37.4 per cent in

Figure 2 Annual mean household income (US\$, 2011 purchasing power parity (PPP)) for selected Asian countries from 1988 to 2013, based on Povcal data/World Development Indicator (WDI) data from the World Bank (authors' computations)



4. Disaggregated results for countries other than China and India are not shown in figure 1 to avoid cluttering it.

Figure 3 Poverty headcount (%) trends for selected Asian countries from 1988 to 2013, based on Povcal data from the World Bank (authors' computations)

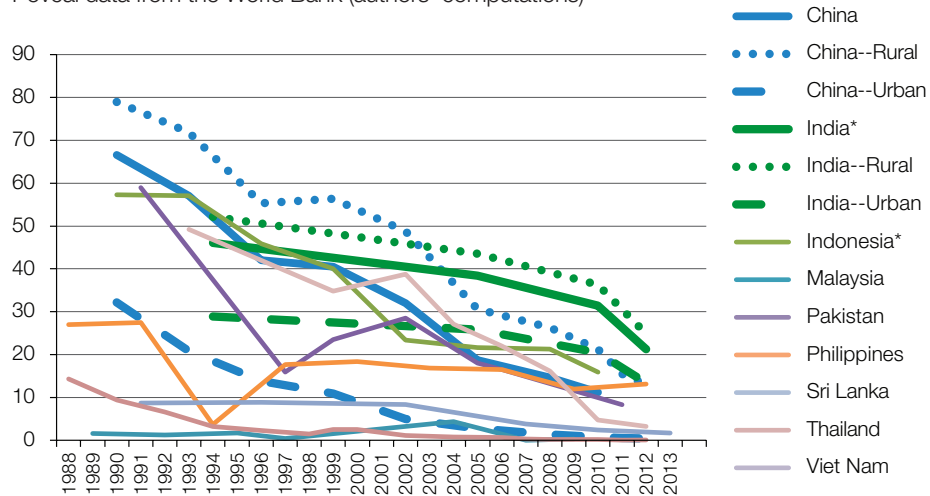
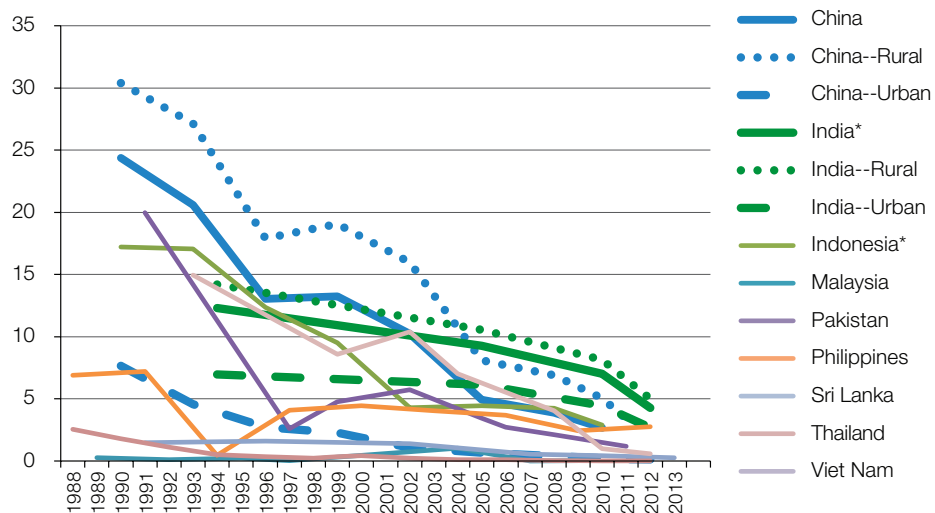


Figure 4 Poverty gap (%) trends for selected Asian countries from 1988 to 2013, based on Povcal data from the World Bank (authors' computations)



1996-2013. Indonesia has seen an increase in the national Gini coefficient from 29 per cent to 35 per cent, with both the urban Gini and the rural Gini increasing between 1987 and 2011 (urban, 32.8 to 42.5 per cent; rural, 27.7 to 34.2 per cent), and showing a broadly similar pattern to that observed for India. The Gini in Pakistan was relatively low, between 29 and 33 per cent, with much higher inequality in urban areas (in 1997-2011: urban, 32.0 to 34.0 per cent; rural, unchanged at 24.5 per cent).

Figure 2 plots the trends in annual mean household income during the period 1988-2013. The trends in national, urban and rural mean incomes in China suggest that household income has increased more rapidly in urban than in rural areas, which explains the increasing rural-urban disparity in China. On the other hand, mean household income

in India has increased at slower rates in both rural and urban areas.⁵ In recent years (after 2000), mean household income in rural India appears to have increased faster than mean household income in urban India, suggesting a *narrowing* of the rural-urban income gap.⁶ Mean household income, however, fluctuated in Malaysia. Other countries (e.g. Sri Lanka and Thailand) experienced more or less steady growth in mean income in the same period.

It can be seen from figures 3 and 4 that both poverty headcount ratios and poverty gaps have reduced over the years for most countries. In China, rural poverty reduced dramatically in 1989-2009, which resulted in a sharp reduction in national poverty, while urban poverty was reduced, but moderately. This is in contrast with increasing trends in the national Gini, the rural Gini and the urban Gini (figure 1). That is, economic growth has resulted in substantial poverty reduction in both rural and urban areas, but rural-urban disparity, as well as inequality within rural and urban areas, increased during the period when China experienced economic growth. India shows similar patterns of poverty reduction, that is, both rural and urban poverty were reduced, while the rate of reduction was higher in rural than in urban areas in terms of both poverty headcount and poverty gap. However, the rate of poverty reduction was much slower in India than in China, irrespective of definitions of poverty or distinctions between rural and urban areas. Other countries also experienced an overall reduction in poverty during the period 1988-2012.

ADB (2014, Figure 1.2, page 3) illustrated the average annual change in the Gini coefficient in various Asian countries. It is clear that China had the highest increase in the Gini coefficient in the 1990s and 2000s. India also experienced an increase in the Gini coefficient in the same period. We can observe that, while China and India experienced high economic growth and poverty reduction in both rural and urban areas, the rural-urban disparity became larger in China. Furthermore, both within-rural and within-urban inequality also increased in both China and India. In India, the rural-urban income gap has decreased in recent years.

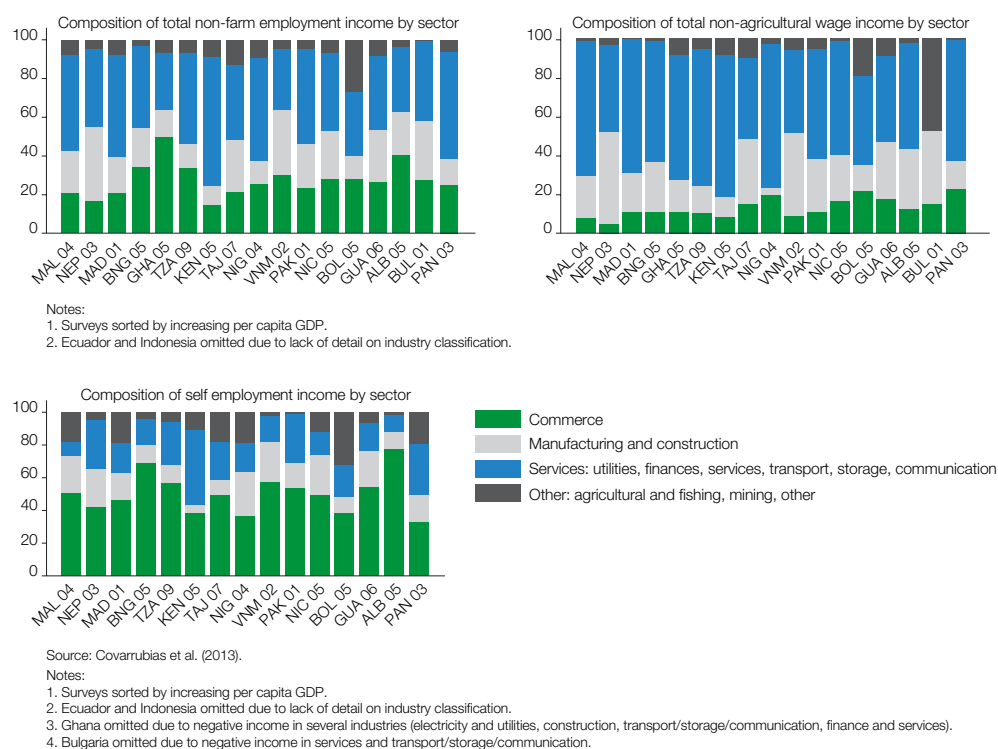
5. In appendix 1 (figure A1), we compare the trends in gross domestic product (GDP) per capita (at 2011 PPP) for China and India with regional and population-weighted averages for East Asia and South Asia (excluding developing countries in both cases). As China and India are the two most populous countries in the world, China's trend coincides with East Asia's, while India's trend coincides with South Asia's. China and India, however, surpassed the regional average after 2005-2006 (China to a much larger extent). We have also compared poverty headcount ratios and poverty gaps for China, India and their regional population-weighted averages, and found that China's poverty figures match East Asia's and India's are broadly same as South Asia's (figure A2). It should be noted that, while China's poverty figures are lower than East Asia's after 2004, India's poverty estimates are higher than South Asia's after 2002-2003. Overall, China's and India's trends explain regional trends in GDP per capita and poverty. Regional averages of the Gini coefficients are not available from WDI data.

6. This is investigated in greater detail in the next section.

3 Rural-urban income gaps

Another important question that arises from the analyses presented in section 2 is whether rural-urban income gaps have narrowed or widened. Given the data limitations on rural and urban income, we also examine agricultural and non-agricultural income gaps, as rural transformation is closely associated with an increase in non-farm income (as discussed in section 1). A recent study suggests that the proportion of income from farming activities has decreased while the proportion of income from non-farming activities has risen as the wealth of households has increased (Covarrubias et al., 2013). The authors emphasize the relative importance of agriculture and farming activities for poorer countries. The variation in non-farm income, however, reveals that considerable differences exist between non-farm sources of income within each country (see figure 5). Covarrubias et al. (2013) highlight the increasing diversity in income generation portfolios among households across countries in Asia.

Figure 5 Composition of non-farm, non-agricultural and self-employment incomes by sector (%)



Wiggins and Keats (2014) suggest that an increase in rural wages in the 2000s has been observed in almost all Asian countries. In China and India in particular, the increase has accelerated in the second half of the 2000s. The increases in rural wages between 2005 and 2012 range from 35 per cent in case of India 92 per cent in China. As shown in figure 6, similar trends can be observed in other Asian countries (Wiggins and Keats, 2014).

If we examine the case of Bangladesh more closely, we can see that the gap between urban and rural wages has narrowed as a result of a rise in rural wages (Zhang et al., 2013; see figure 7). Here, the average rural wage for a male worker increased by around 45 per cent between 2005 and 2010.

Figure 6 Changes in real daily wages for agricultural labour in four Asian countries (US\$, 2010 PPP)

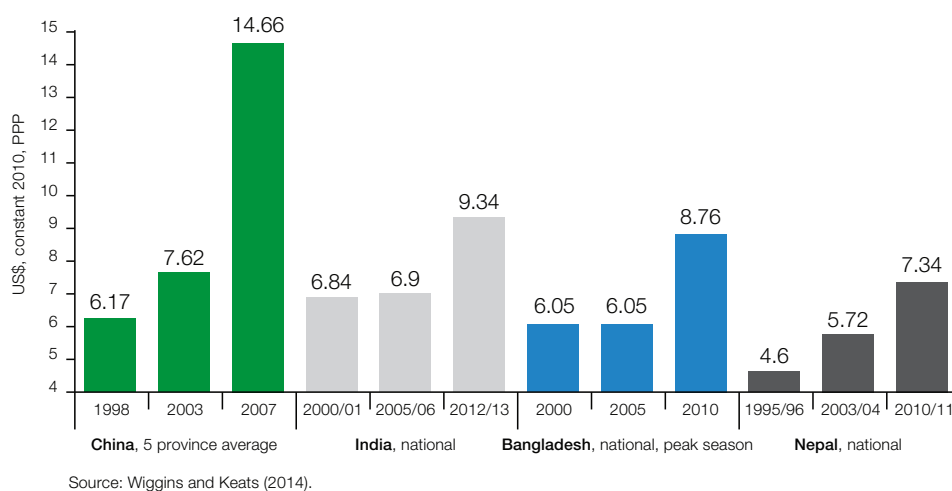
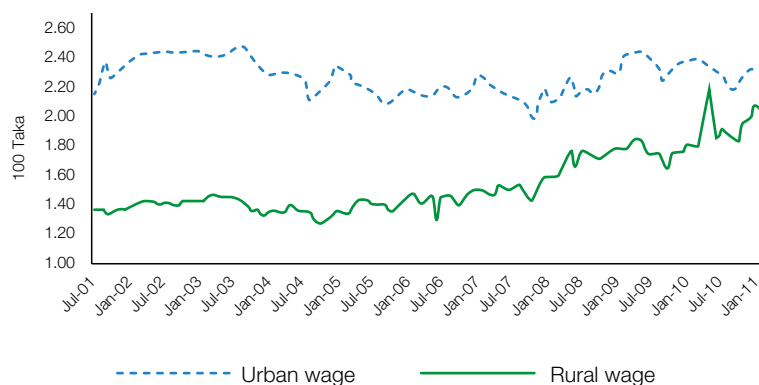


Figure 7 Trends in urban and rural wages for unskilled workers in Bangladesh, 2001-2011

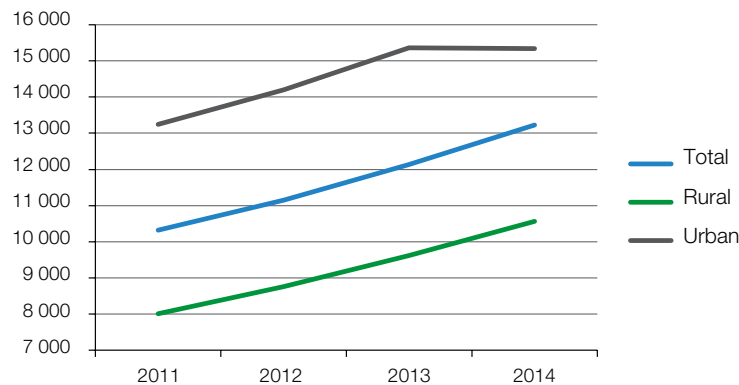


We processed and analysed data on households from the India Human Development Survey (IHDS)⁷ (2005 to 2012) and from the Viet Nam Household Living Standards Survey (VHLSS) (2002, 2004 and 2006) to examine the distribution of income per capita. A number of graphs are included in appendix 2. We found, for instance, that in India (i) the gap showing the degree of inequality across different distributional points narrowed between 2005 and 2012 and (ii) both rural inequality and urban inequality rose in the same period (figure A3 in appendix 2). It was also found that the rural-urban gap in income inequality (in terms of real income per capita) marginally narrowed over the period 2002-2006 in Viet Nam (figure A6 in appendix 2).

We also examined data from the International Labour Organization’s database of labour statistics (ILOSTAT) for mean monthly employment-related income for all self-employed people in the working-age population in Thailand. We observed an increase from 2011 to 2014 in mean income in rural areas; an increase in urban income from 2011 to 2013, followed by a slight decrease in 2014; and an overall increase in average income (figure 8). From 2011 to 2013, rural and urban income moved almost in parallel, but the difference reduced in 2014. So, overall, the gap between urban and rural income has narrowed in Thailand.

It can be inferred that, generally, the rural-urban income gaps of households at different distributional points have been narrowing in a number of Asian countries over time, for instance owing to a reduction in the rural-urban wage gap over time.

Figure 8 Mean monthly employment-related income of all self-employed persons in the working age population in Thailand (in baht), 2011-2014



Source: ILOSTAT.

7. Details of the IHDS can be found at <https://ihds.umd.edu>.

4 Cross-country evidence

We will now turn our attention to the underlying factors that explain the gap between agricultural and non-agricultural incomes. Ideally, we would examine the causes of the rural-urban income gap using cross-sectional data, but to our knowledge such data are not available. Because rural non-agricultural income is growing while urban agricultural income is low, it can be inferred that an estimate of the gap between agricultural and non-agricultural income represents the upper limit of the rural-urban income gap. In addition, the significance of the rural non-farm sector varies considerably across countries. We can therefore use the gap between agricultural and non-agricultural income only as a crude estimate of the rural-urban income gap. In this section, we will also examine the determinants of rural inequality and rural-to-urban migration. The following research questions are considered: (i) Does agricultural growth or non-agricultural growth contribute to the income gap between agricultural and non-agricultural sectors? (ii) Does agricultural growth or non-agricultural growth affect the Gini coefficient in rural areas?

To examine the first question, the factors that narrowed the farm and non-farm income gap are estimated by applying the following econometric model to the cross-country panel data for Asian countries.

$$AD_{it} = \sum_{j=1}^P \alpha_j \Delta AG_{it-1} + \sum_{k=0}^Q \beta_k \Delta NAG_{it-1} + \mathbf{X}'_{it} \gamma + \eta_i + \varepsilon_{it} \quad (1)$$

where i and t denote country and year (1963, ..., 2012), AD_{it} is the difference between non-agricultural value added per capita and agricultural value added per capita, which serves as a proxy for agricultural and non-agricultural income disparity, ΔAG_{it-1} is the lagged first difference of log of agricultural value added per capita (or lagged agricultural growth) and ΔNAG_{it-1} is the lagged first difference of log of non-agricultural value added per capita (or lagged non-agricultural growth). Agricultural growth and non-agricultural growth are lagged to take into account, at least partially, the endogeneity of these terms. \mathbf{X}'_{it} is a vector of control variables including macroinstitutional quality, land area, population density, fragility index, trade openness and labour force with secondary index (see appendix 3 for definitions of and descriptive statistics on the variables). η_i is an unobservable individual effect and ε_{it} is an error term. Using the Hausman test, we reject the hypothesis that household-level effects are uncorrelated with the covariates we control for. The fixed effects model is therefore the preferred specification.

Table 1 Fixed effects (FE) and random effects (RE) results for farm–non-farm income disparity

Variables	(1) FE	(2) RE
L.dlogagrivapc (lagged agricultural growth)	0.03 (0.675)	0.0344 (0.685)
L.dlognoagrivapc (lagged non-agricultural growth)	6.492*** (2.248)	9.230*** (2.021)
Institutional quality	0.874*** (0.131)	0.872*** (0.135)
Land	-0.670*** (0.136)	-0.678*** (0.144)
population_density	0.164*** (0.0595)	0.0957 (0.0616)
fragility_index	0.165*** (0.0490)	0.0678 (0.0423)
Openness	-0.0496 (0.0601)	-0.0909 (0.0599)
Ethnic fractionalization	-0.575*** (0.128)	-0.641*** (0.132)
lab_with_second	0.152*** (0.0338)	0.148*** (0.0341)
Constant	6.998 (0.839)	8.299 (0.851)
Observations	125	125
R-squared	0.824	0.824
Number of years	17	17

Notes: standard errors in parentheses; ***, $p < 0.01$; **, $p < 0.05$; *, $p < 0.1$; statistically significant coefficient estimates are shown in bold.

The results in table 1 indicate that higher lagged non-agricultural growth tends to widen the sectoral income gap, while higher lagged agricultural growth does not. If sectoral growth is persistent over time, there still remains the issue of the endogeneity of these lagged sectoral growth terms, but, given this caveat, the results imply that a higher level of non-agricultural growth tends to widen the agricultural and non-agricultural income gap over the years. As non-agricultural growth can be associated with both urban and rural non-agricultural growth, but urban non-agricultural growth is likely to be much larger than rural non-agricultural growth, it can be inferred that a higher non-agricultural growth rate tends to widen the rural-urban gap over time, while agricultural growth is unrelated to it. That is, a growing rural-urban disparity tends to be brought about by a high level of non-agricultural growth in a country.

If a country has better macroinstitutional quality, the gap between agricultural and non-agricultural income tends to be larger. That is, after controlling for (lagged) agricultural and non-agricultural growth, better institutional quality at the country level is associated

with a larger sectoral income gap. This is consistent with higher quality urban institutions favouring investment in urban areas and thus contributing to non-agricultural growth. Larger land areas, on the other hand, tend to narrow the income gap in favour of the agricultural sector, while higher population density – which tends to be correlated with urbanization – is associated with a larger income gap.

If the country's macroinstitutional situation is more fragile, the agricultural and non-agricultural income gap tends to be larger. The higher the ethnic fractionalization index (which reflects the probability that two randomly selected people will not belong to the same ethnolinguistic group), the smaller the agricultural and non-agricultural income gap. It is plausible that ethnic fractionalization dampens both agricultural and non-agricultural growth. Furthermore, better education in terms of the proportion of the labour force with secondary education is associated with a greater sectoral income gap.

To examine the second question, in equation (2) we specify a fixed effects model to estimate the effect of agricultural and non-agricultural growth on the Gini coefficient in rural areas. That is, we examine how sectoral growth affects inequality in rural areas.

$$Gini_Rural_{it} = \sum_{j=1}^P \alpha_j \Delta AG_{it-1} + \sum_{k=0}^Q \beta_k \Delta AT_{it-1} + \eta_i + \varepsilon_{it} \quad (2)$$

The first column of table 2 suggests that the acceleration of (lagged) agricultural growth tends to reduce the Gini coefficient in rural areas significantly over time, while the acceleration of (lagged) non-agricultural growth tends to increase rural Gini significantly. This is understandable, as non-agricultural growth tends to benefit relatively rich households in rural areas (either through rural-to-urban migration or rural non-agricultural business), while agricultural growth tends to directly benefit relatively poor households.

Table 2 Fixed effects model of the effect of agricultural and non-agricultural value added on the rural Gini coefficient (cross-country analysis)

	The Gini coefficient in rural areas	Net rural-to-urban migration
lagged log Non Agri Value Added PC (lagged non-agricultural growth)	0.703* (0.368)	123.5 (100.8)
lagged log Agri Value Added PC (lagged agricultural growth)	-0.823** (0.363)	-75.20 (110.8)
Constant	3.462 (0.0203)	0.0327 (7.438)
<i>N</i>	81	705
<i>R</i> ²	0.703*	123.5

Notes: standard errors in parentheses; ***, $p < 0.01$; **, $p < 0.05$; *, $p < 0.1$; statistically significant coefficient estimates are shown in bold.

We have also examined whether or not these factors had a dampening effect on rural-to-urban migration (the second column of table 2). We found no significant effect of agricultural and non-agricultural incomes on internal migration in Asia. Here, the non-significant result could be associated with our proxy for rural-to-urban migration. Because cross-country data on rural-to-urban migration are not available, we measured it as the *difference* between net urban population growth and net rural population growth by ignoring natural population growth in urban or rural areas and international migration.

The empirical literature suggests that rural-to-urban migration in itself has a significant effect on inequality in China, as shown by Ha et al. (2016). The authors suggest that inequality and migration have a reciprocally intertwined relationship and find that contemporary migration increases income inequality, while migration from previous periods has a strong income inequality reducing effect. Ha et al. (2016) have estimated a system Gaussian mixture model (GMM) and have found that rural-to-urban migration benefited communities where households with migrants were dominant. Migration improved educational attainment, increased income and consumption per capita, and promoted faster economic growth in rural communities. While migration tends to increase the gender wage gap in general, it decreases the gender wage gap in the migrant's village of origin.

5 The human resource gap between rural and urban areas

In order to analyse the rural-urban gap, it may not be sufficient to focus on income disparity because the development goal should be discussed not only in terms of income growth but also in terms of non-income goals. While it is not possible to incorporate all of the Sustainable Development Goals, it would be useful to highlight an alternative goal in our discussion about rural-urban disparity. Given the data limitations, we will now turn our attention to the human resource gap between rural and urban areas. Although the rural-urban income gap appears to be narrowing in several Asian countries, not including China (see sections 2 and 3), we observe a clear rural-urban gap in human resources in terms of educational levels. In this section, to track the evolution of the rural-urban human resource gap, we use household data from the IHDS for 2005 and 2012.

Table 3 reviews the proportion of households in terms of the highest educational attainment of all household members in each household, based on four categories: no schooling, primary education, secondary education and higher education. We observe a significantly higher proportion of households with no schooling in rural areas (26.9 per cent in 2005, 22.1 per cent in 2012) than in urban areas (9.7 per cent in 2005, 7.4 per cent in 2012); the proportion decreased during the period between 2005 and 2012 in both areas. The proportions of households with primary, secondary and higher education have consistently risen during 2005-2012 in both rural and urban areas (columns (e) and (f)). The gap in human resources between the two areas decreased for no schooling, primary education and secondary education but slightly increased at the higher education level (columns (g) and (h)), which is expected given the concentration of higher education institutions in urban areas.

Table 3 Educational attainment in rural and urban areas in India, 2005 and 2012

India								
	2005		2012		Change (within) from 2005 to 2012		Gap across rural and urban areas	
	Rural (a)	Urban (b)	Rural (c)	Urban (d)	Rural (e) = (c)-(a)	Urban (f) = (d)-(b)	2005 (g) = (b)-(a)	2012 (h) = (d)-(c)
No schooling	26.88%	9.74%	22.06%	7.42%	-4.82%	-2.32%	17.14%	14.64%
Primary ed.	72.96%	90.18%	77.94%	92.58%	4.98%	2.40%	17.22%	14.64%
Secondary ed.	55.78%	80.49%	62.25%	84.13%	6.47%	3.64%	24.71%	21.88%
Higher ed.	8.20%	27.87%	10.15%	30.80%	1.95%	2.93%	19.67%	20.65%
No. obs.	26 734	14 820	27 579	14 573				

Source: IHDS data, authors' calculations.

6 Conclusions and policy implications

This study offers evidence on the rural-urban gap in the context of growing inequality in Asia based on the available cross-country data. Our findings are summarized below.

First, China and India explain the trends of regional inequality, given their large populations, as major contributors. Overall, China's income inequality is characterized by rural-urban disparity, but the inequality within rural and within urban areas has constantly worsened, while the country has experienced very high economic growth. India is mainly characterized by high inequality within urban areas, despite a sharp reduction in urban poverty. India's rural-urban income gap has narrowed in recent years. Given the huge populations in China and India, the steady increase in income inequality in these countries is likely to be a leading cause of the overall shift in income distribution in Asia. In other Asian countries, Thailand has experienced an overall decreasing trend in the national Gini coefficient, while in Malaysia both the urban Gini and the rural Gini remained high. The Philippines also recorded a relatively high Gini coefficient, while Indonesia has seen an increase in the national Gini coefficient, with both the urban Gini and the rural Gini increasing between 1987 and 2011, and showing a broadly similar pattern to that observed for India. The Gini in Pakistan was relatively low, between 29 per cent and 33 per cent, with much higher inequality in urban areas.

The rural-urban disparity in GDP per capita – as well as high and increasing inequality in rural China and high and increasing inequality in urban India – characterizes overall inequality at national levels. If we examine the recent changes in household income distributions in both rural and urban areas, we find that the rural-urban income gap has narrowed in many countries, such as, India, Viet Nam and Thailand. This could be associated, at least in part, with the narrowing of the rural-urban wage gap in recent years.

Second, our econometric results on the agricultural and non-agricultural income gap suggest that a higher non-agricultural growth rate tends to widen the rural-urban gap over time, while agricultural growth is unrelated to the rural-urban gap. If the country's macroinstitutional situation is more fragile, the gap tends to be larger. On the other hand, the acceleration of agricultural growth tends to reduce inequality in rural areas significantly over time, while the acceleration of non-agricultural growth tends to increase rural inequality significantly.

Third, the rural-urban human resources gap in terms of educational attainment has increased in both China and India. This will have to be interpreted in the growing literature on demographic dividend in Asia. While the working-age population has increased and the population of 0-14 years old has decreased, the overall positive effect of the former on economic growth is reduced if the share of the educated labour force is higher.⁸ Promotion of education in rural areas without undermining the benefits from demographic dividend is likely to be important in many Asian countries. It should be noted that secondary education alone has a positive and significant effect on economic growth.

In terms of policy implications, as Imai et al. (2014) suggest, policies that would promote agricultural growth and/or those facilitating access of poor or disadvantaged households to remittances or credit are important for reducing rural poverty. Given that higher non-agricultural growth tends to widen the rural-urban income gap, the acceleration of the agricultural growth rate (towards the non-agricultural growth rate) would reduce the income gap. Policies to promote education in rural areas are deemed important to narrow the rural-urban human resources gap. Policies that would stabilize macroeconomic conditions and reduce fragility are likely to narrow the rural-urban income gap.

8. Details will be provided on request.

References

- ADB (Asian Development Bank). 2014. *Inequality in Asia and the Pacific: Trends, drivers, and policy implications*, Manila: Asian Development Bank.
- Araar, A. 2006. *On the Decomposition of the Gini Coefficient: An Exact Approach, with an Illustration Using Cameroonian Data*. CIRPÉE Working Paper No. 06-02. Quebec: Centre interuniversitaire sur le risque, les politiques économiques et l'emploi.
- Covarrubias, K., Davis, B., Bakouan, A., and Giuseppe, S. D. 2013. "Household Income Generation Strategies". Background Paper for the *World Development Report 2013*, Washington, D.C.: World Bank.
- Gaiha, R., Jha, R., and Kulkarni, V. S. 2014. *Diets, Malnutrition, and Disease: The Indian Experience*. New Delhi: Oxford University Press.
- Ha, W., Yi, J., Yuan, Y., and Zhang, J. 2016. "The Dynamic Effect of Rural-to-Urban Migration on Inequality in Source Villages: System GMM Estimates from Rural China". *China Economic Review* 37: 27-39.
- Himanshu and Sen, K. 2014. "Revisiting the Great Indian Poverty Debate: Measurement, Patterns, and Determinants". Brooks World Poverty Institute Working Paper Series 203/14. Manchester: Brooks World Poverty Institute, University of Manchester.
- Hnatkovskay, V., and Lahiriz, A. 2014. "Structural Transformation and the Rural-Urban Divide". Draft. Vancouver: Vancouver School of Economics, University of British Columbia. www.economicdynamics.org/meetpapers/2014/paper_746.pdf
- Imai, K. S., Cheng, W., and Gaiha, R. 2017. "Dynamic and Long-term Linkages among Growth, Inequality and Poverty in Developing Countries". *International Review of Applied Economics* 31(3): 318-38.
- Imai, K. S., Gaiha, R., and Garbero, A. 2014. "Poverty Reduction during the Rural-Urban Transformation: Rural Development Is Still More Important than Urbanization?". Brooks World Poverty Institute Working Paper Series 204/14. Manchester: Brooks World Poverty Institute, University of Manchester.
- Imai, K., Gaiha, R., Ali, A., and Kaicker, N. 2014. Remittances, Growth and Poverty: New Evidence from Asian Countries. *Journal of Policy Modeling* 36(3): 524-38.
- Imai, K. S., Gaiha, R., and Thapa, G. 2015. "Does Non-farm Sector Employment Reduce Rural Poverty and Vulnerability? Evidence from Vietnam and India". *Journal of Asian Economics* 36(2): 47-61.

- Imai, K. S., Gaiha, R., and Bresciani, F. 2016. "Dynamics of Transformation in Rural Asia and the Pacific: Policy and Operational Implications". Draft. Rome: IFAD.
- Imai, K., and You, J. 2014. "Poverty Dynamics of Households in Rural China". *Oxford Bulletin of Economics and Statistics* 76(6): 898-923.
- Kang, W., and Imai, K. 2012. "Pro-poor Growth, Poverty and Inequality in Rural Vietnam". *Journal of Asian Economics* 23(5): 527-39.
- Reardon T., and Timmer, C. P. 2014. "Five Inter-linked Transformations in the Asian Agrifood Economy: Food Security Implications". *Global Food Security* 3(2): 108-17.
- Yang, D. T. 1999. "Urban-biased Policies and Rising Income Inequality in China". *The American Economic Review* 89(2): 306-10.
- You, J., Imai, K. S., and Gaiha, R. 2016. "Declining Nutrient Intake in a Growing China: Does Household Heterogeneity Matter?" *World Development* 77: 171-91.
- Wiggins, S., and Keats, S. (2014). *ODI Report: Rural Wages in Asia*. London: Overseas Development Institute. www.odi.org/publications/8747-rural-wages-asia
- Zhang, X., Rashid, S., Ahmad, K., Mueller, V., Lee, H. L., Lemma, S., Belal, S., Ahmed, A. U. 2013. "Rising wages in Bangladesh". IFPRI Discussion Paper 1249. Washington, D.C.: International Food Policy Research Institute.

Appendix 1: Positions of China and India in changes in poverty and GDP per capita in the region

Figure A1 Changes in real GDP per capita (at 2011 PPP) (authors' calculation)

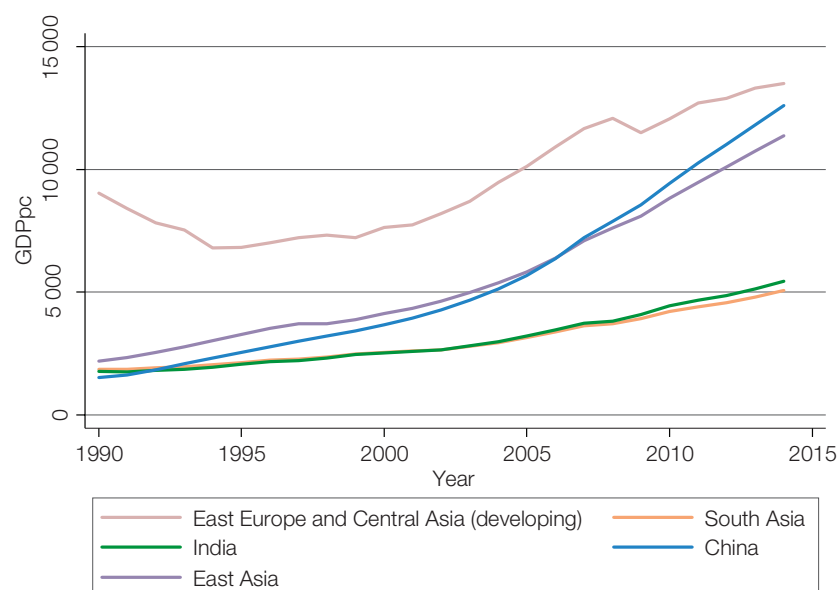
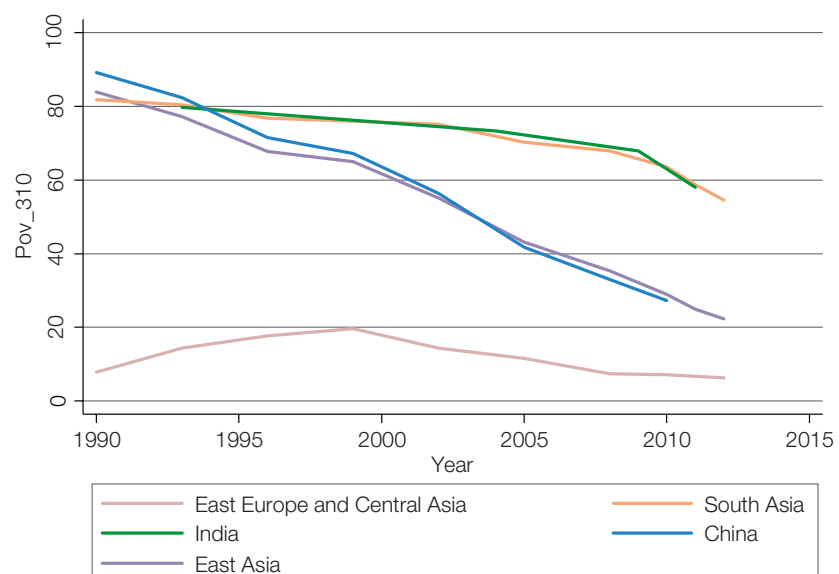


Figure A2 Changes in poverty headcount (based on US\$1.90 a day at 2011 PPP) (authors' calculation)



Appendix 2: Graphs showing the distribution of income per capita

Figure A3 illustrates the Lorenz curves of inequality for rural and urban areas. These figures clearly show that (i) the gap between the rural and urban Lorenz curves – that is, the gap showing the degree of inequality across different distributional points – narrowed between 2005 and 2012, and (ii) both rural and urban Lorenz curves shifted towards the right during 2005-2012, suggesting that both rural inequality and urban inequality rose in the same period. This is consistent with figure 1, which shows that (i) both the urban Gini index and the rural Gini index increased in India, and (ii) the difference between the urban Gini and the rural Gini became larger between 2005 and 2012 because the urban Gini increased substantially, while the rural Gini increased only marginally during the same period.

Figure A4 shows the distribution of rural non-agricultural wage, which shifted further to the right during 2005-2012. This suggests that the inequality of rural non-agricultural wages rose in India between 2005 and 2012.

Furthermore, we plot the Lorenz curves for agricultural and non-agricultural incomes per capita using the Indian IHDS data in figure A5. We observe a similar pattern, that is, inequality in both agricultural and non-agricultural income rose in the same period. While the Lorenz curves in the two sectors almost overlap in each year, the Lorenz curve for non-agricultural income lies below that of agricultural income in the middle range of cumulative distributions (or 0.2-0.6). That is, non-agricultural income became more unequally distributed in 2012.

Figure A3 The distribution of income per capita between rural and urban areas using the IHDS (authors' calculations)

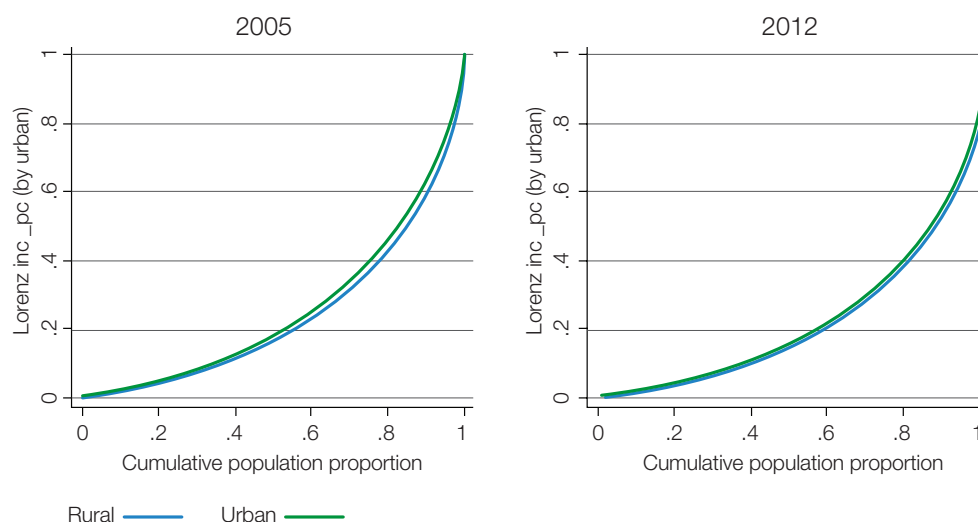


Figure A4 Graphs showing the distribution of rural non-agricultural wage using the IHDS (authors' calculations)

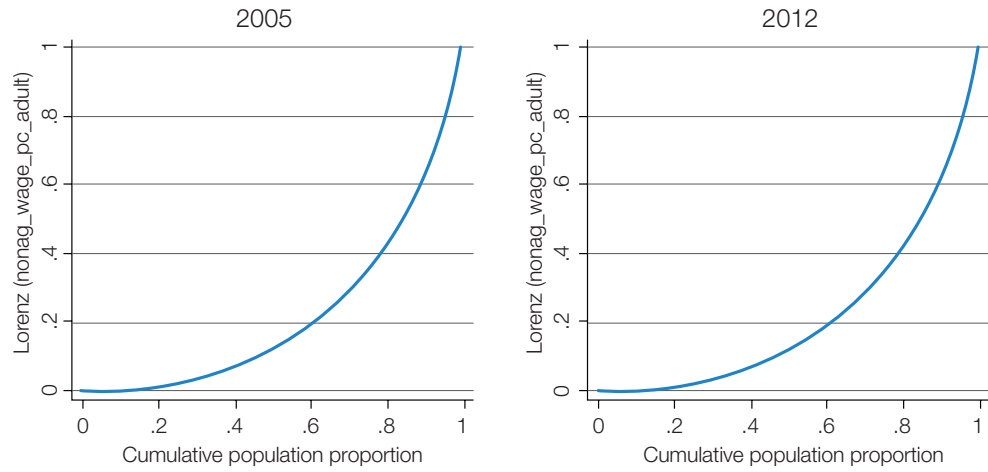
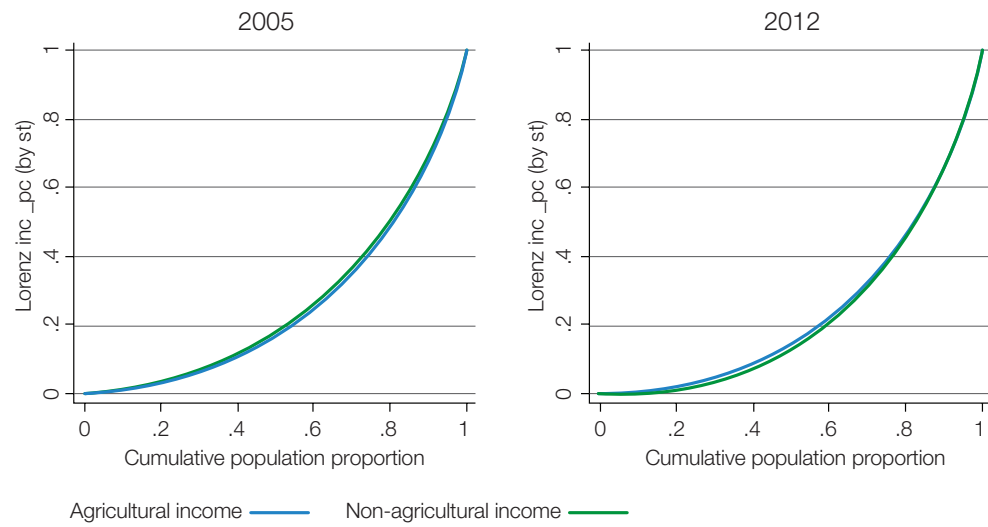


Figure A5 Graphs showing the distribution of agricultural versus non-agricultural income per capita using the IHDS (authors' calculations)

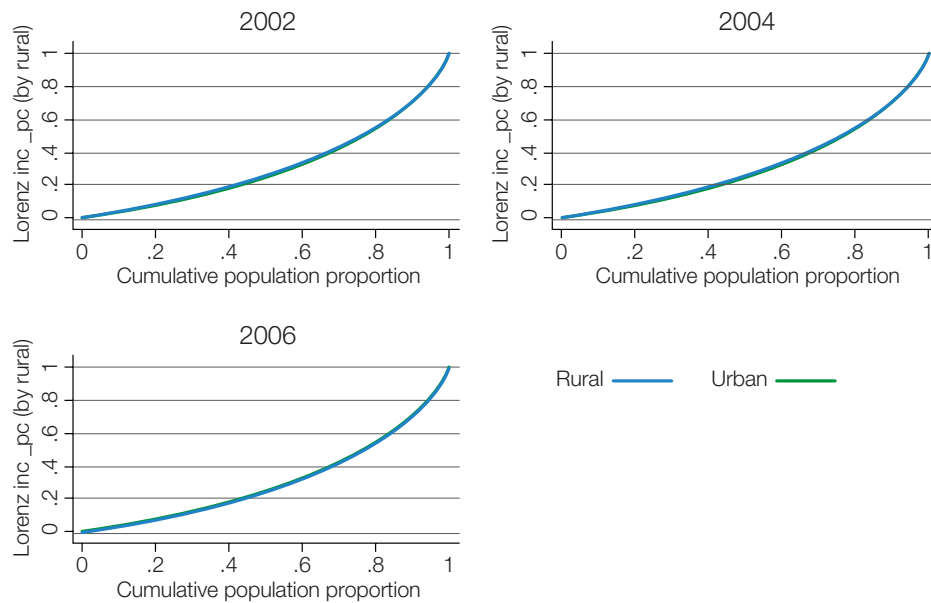


We repeated the same analyses using the VHLSS data⁹ for 2002, 2004 and 2006. In figure A6, we have plotted the Lorenz curve for each year. The rural-urban gap in income inequality (in terms of real income per capita) marginally narrowed during the period 2002-2006 in Viet Nam.

In figure A7, the Lorenz curves for rural non-agricultural income are plotted for each year. The distribution of rural non-agricultural income remained stable, with no observable changes.

In Figure A8, we have plotted the Lorenz curves for agricultural income per capita as well as non-agricultural income per capita in Viet Nam using the VHLSS data for 2002-2006. It can be observed that the gap between agricultural and non-agricultural income slightly narrowed during that period.

Figure A6 The distribution of income per capita in Viet Nam between rural and urban areas using the VHLSS data for 2002-2006 (authors' calculations)



9. See http://www.gso.gov.vn/default_en.aspx?tabid=483&idmid=5 for details.

Figure A7 The distribution of rural non-agricultural wage per capita in Viet Nam using the VHLSS data for 2002-2006 (authors' calculations)

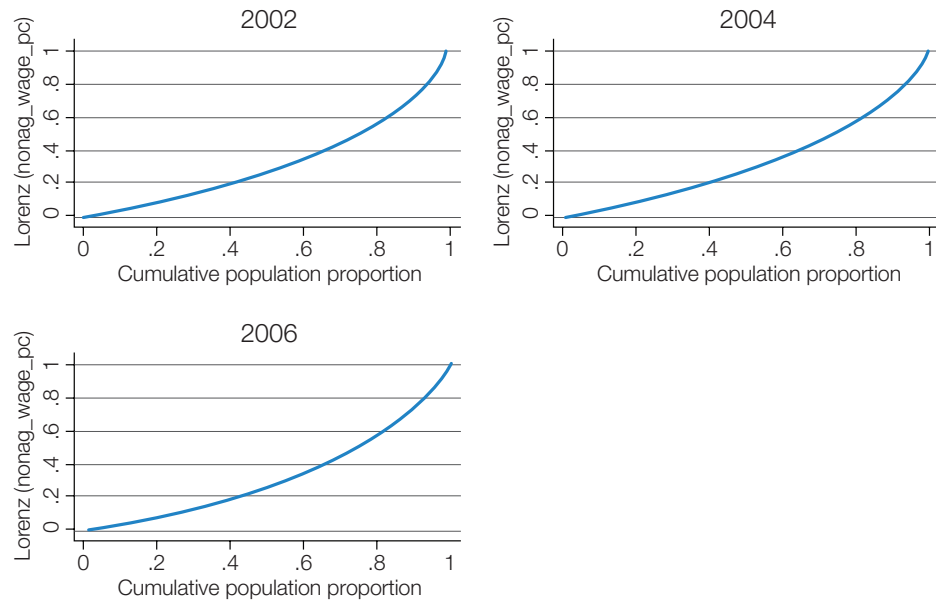
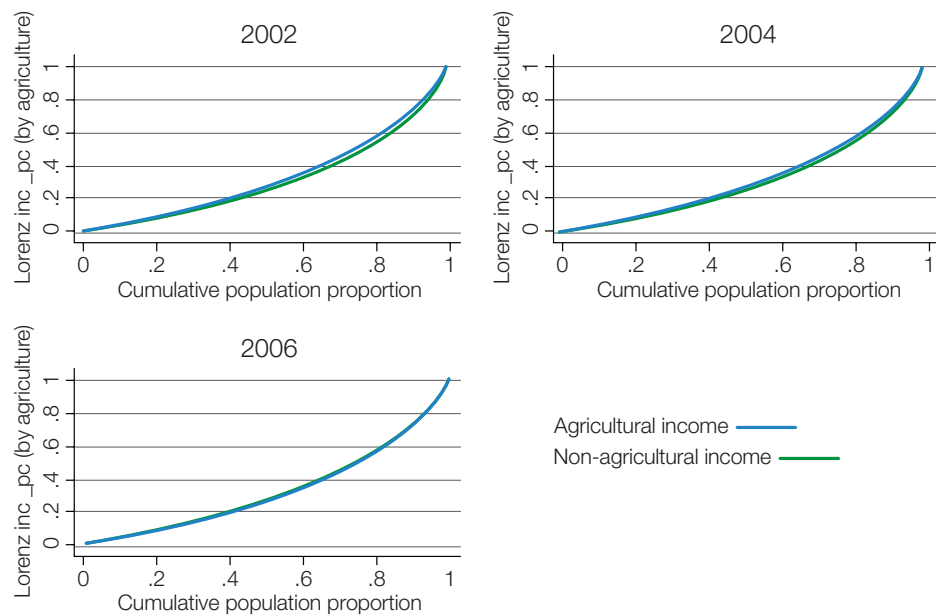


Figure A8 The distribution of agricultural versus non-agricultural income per capita in Viet Nam using the VHLSS data for 2002-2006 (authors' calculations)



Appendix 3: Data used for the cross-country regression

Variable	Definition (data source)	Obs.	Mean	Std Dev.	Min.	Max.
Macroeconomic institutions	Aggregate institutional quality (average of voice and accountability, government effectiveness, regulatory quality, rule of law and control of corruption)	395	-0.524	0.464	-1.660	0.940
Land	Land area is a country's total area (WDI)	1 155	3.815	1.166	0.000	5.118
Population density	Population density (people per sq. km of land area)	1 155	6.302	1.641	0.000	7.636
Fragility Index	CPIA rating of macroeconomic management and coping with fragility (1=low to 6=high)	1 176	7.618	1.193	1.000	8.000
Openness	Imports and exports (value added)/GDP (WDI).	1 155	4.543	2.846	0.000	7.146
Ethnic fractionalization	Ethnic Fractionalization Index*	697	-1.059	0.706	-3.091	-0.308
lab_with_secondary	Labour force with secondary education	1 155	0.150	0.706	0.000	5.209
populati~_14	Population below 14 years old	1 155	1 495.045	405.122	205.000	2 116.000
populati~65_	Population above 65 years old	1 155	1 225.122	366.004	2.000	2 080.000

* Ethnic Fractionalization Index reflects the probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group. The higher the number, the more fractionalized the society. The definition of ethnicity involves a combination of racial and linguistic characteristics.

The IFAD Research Series

01. **Agricultural and rural development reconsidered**
A guide to issues and debates
By Steve Wiggins
02. **Migration and transformative pathways**
A rural perspective
By David Suttie, Rosemary Vargas-Lundius
03. **Fostering inclusive outcomes in sub-Saharan African agriculture**
Improving agricultural productivity and expanding agribusiness opportunities
By David Suttie, Rui Benfica
04. **The effects of smallholder agricultural involvement on household food consumption and dietary diversity**
Evidence from Malawi
By Rui Benfica, Talip Kilic
05. **Rural-urban linkages and food systems in sub-Saharan Africa**
The rural dimension
By Karim Hussein, David Suttie
06. **Why food and nutrition security matters for inclusive structural and rural transformation**
By Steven Were Omamo
07. **Measuring IFAD's impact**
Background paper to the IFAD9 Impact Assessment Initiative
By Alessandra Garbero
08. **Fostering inclusive rural transformation in fragile states and situations**
By Karim Hussein
09. **Social protection and inclusive rural transformation**
By Carolina Trivelli, Silvana Vargas, Jhonatan Clausen
10. **Inclusive Finance and Inclusive Rural Transformation**
By Calum G. Turvey
11. **Food safety, trade, standards and the integration of smallholders into value chains**
A review of the literature
By John Humphrey
12. **An evidence-based assessment of IFAD's end of project reporting**
By Bia Carneiro, Alessandra Garbero
13. **Graduation models for rural financial inclusion**
By Khalid El Harizi, Xinjia Yan
14. **Disbursement performance of the International Fund for Agricultural Development (IFAD)**
An in-depth analysis of drivers and trends
By Tim Balint, Daniel Higgins, Paola Mallia, Silvana Scalzo, Paul Winters
15. **Remittances, growth and poverty reduction in Asia**
A critical review of the literature and new evidence from cross-country panel data
By Katsushi S. Imai, Bilal Malaeb, Fabrizio Bresciani
16. **Getting the most out of impact evaluation for learning, reporting and influence**
Insights from piloting a Participatory Impact Assessment and Learning Approach (PIALA) with IFAD
By Edward Heinemann, Adinda Van Hemelrijck, Irene Guijt
17. **Population age structure and sex composition in sub-Saharan Africa**
A rural-urban perspective
By Ashira Menashe-Oren, Guy Stecklov

18. **Do agricultural support and cash transfer programmes improve nutritional status?**
By Seth R. Gitter, James Manley, Jill Bernstein, Paul Winters
19. **Measuring women's empowerment in agriculture**
A streamlined approach
By Alessandra Garbero, Emilie Perge
20. **Transformation and diversification of the rural economy in Asia**
By Roehlano M. Briones
21. **Does relative deprivation induce migration?**
Evidence from sub-Saharan Africa
By Kashi Kafle, Rui Benfica, Paul Winters
22. **Poverty reduction during the rural-urban transformation**
Rural development is still more important than urbanization
By Katsushi S. Imai, Raghav Gaiha, Alessandra Garbero
23. **The effect of the sectoral composition of economic growth on rural and urban poverty**
By Rui Benfica, Heath Henderson
24. **Influence of nutrition-sensitive interventions on dietary profiles of smallholder farming households in East and Southern Africa**
By Marian Amaka Odenigbo, Patience Elabor-Idemudia, Nigatu Regassa Geda
25. **Structural transformation and poverty in Malawi**
Decomposing the effects of occupational and spatial mobility
By Rui Benfica, Margherita Squarcina, Alejandro de la Fuente
26. **Exploration of a methodology for assessing the impact of policy engagement**
What impact and how to assess it?
By Anna McCord, Ed Heinemann, Lauren Phillips
27. **Asia's rural-urban disparity in the context of growing inequality**
By Katsushi S. Imai, Bilal Malaeb



International Fund for Agricultural Development

Via Paolo di Dono, 44 - 00142 Rome, Italy

Tel: +39 06 54591 - Fax: +39 06 5043463

Email: ifad@ifad.org

www.ifad.org

 ifad-un.blogspot.com

 www.facebook.com/ifad

 instagram.com/ifadnews

 www.twitter.com/ifadnews

 www.youtube.com/user/ifadTV

ISBN 978-92-9072-841-2



9 789290 728412

