THE PHILIPPINE REVIEW OF ECONOMICS
Vol. L No. 1, June 2013 pp. 23–44

Labor markets, occupational choice, and rural poverty in four Asian countries

Jonna P. Estudillo
National Graduate Institute for Policy Studies, Tokyo, Japan

Tomoya Matsumoto
National Graduate Institute for Policy Studies, Tokyo, Japan

Chowdhury Zia Uddin Hayat
Finance Division, Ministry of Finance, Dhaka, Bangladesh

Nandika S. Kumanayake
Sri Lanka Customs, Ministry of Finance, Colombo, Sri Lanka

Keijiro Otsuka
National Graduate Institute for Policy Studies, Tokyo, Japan

This paper explores the underlying mechanism in the rural labor market that leads to income growth and poverty reduction in the rural areas of the Philippines, Vietnam, Bangladesh, and Sri Lanka. Increase in nonfarm income, most importantly coming from formal jobs, has served as an important driver of income growth and poverty reduction. Thus, to reduce rural poverty, formal jobs must be created because quality of jobs matters a lot in improving the living standards.

JEL classification: J24, J43, O15
Keywords: poverty, formal jobs, nonfarm sector, rural labor market

1. Introduction

Poverty reduction has been an international objective since 1990 with the signing of the Millennium Development Goals (MDGs), whose first target is "to halve the proportion of people living on less than a dollar a day between 1990 and 2015". According to the United Nations (UN) [2012], Target 1 has been reached five years ahead of the 2015 deadline despite the setback brought about by the global financial crises and the food and energy crises that took place in 2008–2009. The proportion of people living on less than USD 1.25 a day fell from 47 percent in 1990 to 24 percent in 2008 UN—a reduction from over 2 billion to less than 1.4 billion [UN 2012:4].

While much is known about the incidence, persistence, and regional distribution of poverty, much less is known about the underlying mechanisms in household income growth and poverty reduction. Poverty reduction requires long-term and intricate processes of change in jobs and access to land, new technology, and markets. Here we examine how rural labor markets function and how their functions change over time. This is because the main asset of the poor is their labor [IFAD 2000], and it is primarily through the labor market that the poor are able to participate in and benefit from economic growth. Surprisingly, there is a common underlying mechanism in the rural labor market that leads to income growth and poverty reduction in the Philippines, Vietnam, Bangladesh, and Sri Lanka.

By now it is well known that poverty is largely a rural phenomenon. Since rural poverty accounts for 70 percent of the aggregate poverty [IFAD 2010], it is sensible to focus on reducing rural poverty in order to reduce aggregate poverty. The rural poor are commonly the landless workers and smallholder farmers because they lack access to land resources, while land is a major source of household income [Otsuka, Estudillo, and Sawada 2009]. Yet, increasingly, rural households have been observed to diversify their income sources away from farm to nonfarm sources (Otsuka, Estudillo, and Sawada [2009]; Estudillo, Sawada, and Otsuka [2008]; Estudillo et al. [2011]). This is a rational strategy to avoid falling into poverty because of the increasing scarcity of farmland brought about by high population pressure on closed land frontier in the majority of developing countries (Otsuka and Place [2001]; Hayami and Kikuchi [2000]; Hossain and Bayes [2009]).

Rural labor markets consist of farm and rural nonfarm labor markets, which are linked with urban labor markets through interregional migration [David and Otsuka 1994]. The relative importance of these labor markets changes over time and differs substantially among developing countries

and even across regions within a country (Haggblade, Hazell, and Dorosh [2007]; Reardon et al. [2007]; Lanjouw and Lanjouw [2001]). Long-term data sets from Asia show a remarkable growth of nonfarm income, which is the major source of overall household income growth and poverty reduction [Otsuka, Estudillo, and Sawada 2009]. The shrinking of farm size due to rapid population growth and slow economic transformation serves as a strong push for working members of land-poor households to venture into nonfarm activities in urban metropolises and rural towns [Otsuka, Estudillo, and Yamano 2010]. It appears that nonfarm labor markets have important roles to play in poverty reduction in rural Asia.

This paper attempts to (1) review the relative importance of different components of the rural labor markets, (2) examine how their functions differ across geographical locations and how such functions change over time, and (3) inquire into the difference in the contribution to poverty reduction among different jobs—that is, agricultural wage employment, formal and informal nonfarm wage jobs, and nonfarm self-employment. We used household-level panel data sets collected from three countries in Asia over the last few decades (Philippines, Vietnam, and Bangladesh). Although the panel data are not available, we also examine the long-term changes in Sri Lanka. In brief, this study found the increasing importance of nonfarm income, particularly in formal jobs, in household income growth, implying that the expansion of nonfarm labor markets in general, and formal labor markets in particular have served as an important driver of income growth and poverty reduction. This phenomenon is particularly visible in Asia from the mid-1980s to late 2000s.

This paper has six remaining sections. Section 2 explores the connection between land resources, economic transformation, and poverty in four countries in Asia. Section 3 describes the data sets used in this study. Section 4 examines changes and differences in income, its compositions, and poverty incidence. Section 5 attempts to identify the factors affecting occupational choice. Section 6 explores poverty trajectories and highlights the importance of formal nonfarm jobs in assuring nonpoor status. Finally, section 7 presents the summary and conclusions.

2. Land resources, structural transformation, and poverty in four Asian countries

If the rural labor force increases under the scenario of closed land frontier and stagnant agricultural technology, we expect a decrease in the marginal productivity of labor leading to a decrease in income and a rise in the incidence of poverty in the rural areas. This is seemingly the case in the Philippines, Vietnam, Bangladesh, and Sri Lanka, where land frontier had been closed in the 1960s and 1970s, and population grew at an annual growth rate of close to 2 percent from 1960 to 1979 (Table 1). Consequently, the amount of available land resources in terms of arable land per person declined significantly while the share of urban population increased in these countries (Table 1).

Table 1. Population growth, arable land person, and urban share of population in the Philippines, Vietnam, Bangladesh, and Sri Lanka, 1960–2011

	Philippines	Vietnam	Bangladesh	Sri Lanka
Average population growth per annum (%)				
1960-69	3.14	2.01	2.96	2.41
1970-79	2.84	2.30	1.79	1.67
1980-89	2.73	2.09	2.71	1.51
1990-2000	2.30	1.68	2.14	1.25
2000-2011	1.88	1.14	1.40	0.76
Arable land per person (ha)				
1990	0.088	0.080	0.089	0.052
2005	0.058	0.077	0.056	0.055
Share of urban population (%)				
1990	48.5	20.2	19.8	17.1
2011	48.8	31.0	28.3	15.1

Source: World Bank [2013].

Unexpectedly, however, the incidence of poverty has declined along with the shift of the locus of economic activities away from agriculture to industry and services (Table 2). While Vietnam started at a much higher rate of poverty incidence in the 1990s, the decline in the incidence of poverty had been spectacular in this country (47 percentage points from mid-1990 to late 2000) while modest in the Philippines, Bangladesh, and Sri

Lanka. Vietnam has shown a remarkable growth rate of its gross domestic product (GDP) beginning in 1990 as economic liberalization ("Doi Moi", which started in 1986) has deepened with the removal of the US trade embargo in 1994. The service sector has been the dominant sector in the Philippines, Bangladesh, and Sri Lanka whereas industry has become the largest contributor to GDP in Vietnam. Many people believe that the expansion of labor-intensive manufacturing sector in Vietnam has served as a propelling force that enabled the poor people to participate in and benefit from economic growth.

Table 2. Gross domestic product, its composition and annual growth, and poverty headcount ratio in the Philippines, Vietnam, Bangladesh, and Sri Lanka, 1990–2011

	Philippines	Vietnam	Bangladesh	Sri Lanka
Agriculture, value added (% GDP)				
1980	25	na	31	27
1990	22	38	30	26
2000	13	24	26	20
2011	12	22	19	12
Industry, value added (% GDP)				
1980	39	na	21	30
1990	34	23	22	26
2000	35	37	25	27
2011	32	41	28	30
Services, value added (% GDP)				
1980	36	na	48	43
1990	44	39	48	48
2000	52	39	49	53
2011	56	37	53	58
Average growth per annum (%) of the gross domestic product (GDP)				
1980-1989	1.66	4.54[1]	3.48	3.96
1990-2000	2.75	7.42	4.80	5.26
2000-2011	4.67	7.11	5.91	5.56
Poverty headcount ratio at $1.25 a day (PPP) (% of population)				
Mid-1990	28.1	63.7	60.9	16.3
Late 2000	18.4	16.8	43.2	7.0

Source: World Bank [2011].

[1]Refers to 1984 to 1989.

n.a. - not available

3. Data sets

Table 3 summarizes the basic information about the data sets used in this paper. In the Philippines, data used were taken from randomly selected 295 households in two villages each in Central Luzon and Panay Islands [Estudillo, Sawada, and Otsuka 2008]. These households were interviewed in 1985 for the first time and have since been interviewed almost every four years. In this paper, we use the sample survey data in 1985 and the most recently collected village census data in 2008. In 2008, we were able to track 68 percent of the original households in 1985.

Table 3. Description of the datasets

Country	Type	Year when the survey was conducted		Number of households in the initial survey	Sample area
		Initial	Final		
Philippines	Panel	1985	2008	295	Central Luzon and Panay Island
Vietnam	Panel	1996	2009	376	North and South
Bangladesh	Panel	1988	2008	1,240	National
Sri Lanka	Random cross-section	1991	2007	18,246	National

The Vietnam data set covers 8 communes located in 4 provinces, 2 in the north (Hanoi and Thai Nguyen) and 2 in the south (Long An and Can Tho). The number of household respondents for each commune varies from 45 to 50 for a total of 376 households for the 8 communes. There was a survey of the same set of households in 1996 and 2009. The number of households declined to 344 in 2009 mainly due to outmigration of households and absence during the survey visit. We ran a probit function of being present in 2009 survey using the baseline information in 1996 such as age, education, and cultivated farmland, and found that the coefficients of these variables were all statistically not significant, indicating that attrition was largely random. Thus, we included all the original respondents in 1996 in our analysis. The Bangladesh panel data included randomly selected households throughout the entire country. Data were collected from 1,240 households in 1988, 1,880 households in 2000, 1,927 households in 2004, and 2,010 households in 2008 [Hossain and Bayes 2009]. The data sets from the Philippines, Vietnam, and Bangladesh are basically panel data, with the replacement of deceased household heads by their successors while excluding households that migrated.

Data from Sri Lanka came from the Household Income and Expenditure Survey (HIES), a nationally representative data set collected by the Department of Census and Statistics of Sri Lanka. Data used were taken from the earliest round of surveys in 1990/1991 consisting of 18,246 households and the latest round in 2006/2007 consisting of 18,363 households [Kumanayake 2011]. Households in Sri Lanka are divided into three sectors in accordance with the HIES classification: (1) urban sector, defined as an area governed by either the Municipal Council or the Urban Council; (2) estate sector, which consists of plantation areas that are more than 20 acres in size and having not less than ten residential laborers; and (3) rural sector, defined as areas that do not belong to the urban sector or the estate sector. In our analysis, we included estate and rural households and excluded urban households because the latter depend almost exclusively on nonfarm income and thus no changes in the sources of income of these households can be observed over time.

4. Changes in household income and its source

Here changes in household income sources and poverty reduction are described through the lens of job choice, as nonfarm jobs have become the more important source of rural household income with the decline in farm size and increasing incidence of landlessness.

Changes in household income sources are explored in Table 4. Household income was divided into six major components: (1) agriculture, wage employment; (2) agriculture, self-employment (or farming); (3) nonagriculture, formal wage employment; (4) non-agriculture, informal wage employment; (5) nonagriculture, self-employment; and (6) remittances and others. Agricultural wage employment income comes from off-farm labor activities in agriculture—primarily in transplanting, weeding, harvesting, and threshing in rice farming—which is characterized by high seasonality. Income from self-employment in agriculture (or farming) comes from crop production (e.g., rice, vegetables, and fruits), livestock and poultry propagation, and fishing. Nonfarm income comes from wage employment in formal and informal sectors, and self-employment activities (e.g., operating a store, workshop, self-owned vehicle, handicraft shop, etc.). Remittances come mainly from family members (e.g., unmarried children) working abroad or locally in big cities and towns. Other income could be pensions, gifts, and other forms of transfer payments. Table 4 shows the

sources of income and poverty statistics in two points in time.[1] A USD 1.25 per capita per day poverty line was used at purchasing power parity (PPP) prices (based on consumption) in all the Asian countries, except Bangladesh where we used the traditional one-dollar per capita per day poverty line.

Table 4 shows that the contribution of agricultural wage income to the total household income has declined in Asia. This implies that reliance on agricultural labor markets alone will not reduce poverty to a significant extent. In contrast, the increasing nonfarm income has become the decisive factor in reducing rural poverty. This clearly points to the importance of the development of nonfarm labor market as a depository of excess rural labor in a scenario of decreasing farm size and increasing landlessness.

Table 4. Sources of household income in the Philippines, Vietnam, Bangladesh and Sri Lanka

Philippines	Farmer households		Landless households	
	1985	2008	1985	2008
Per capital income in USD PPP, 2005 constant	289	1475	256	1226
Composition of income (percent)				
Agriculture, wage employment	11	4	27	10
Agriculture, self-employment	56	27	11	5
Non-agriculture, formal wage employment		21		20
Non-agriculture, informal wage employment	↕7	10	↕14	20
Non-agriculture, self-employment	10	5	34	7
Remittances and others	16	33	14	38
Total	100	100	100	100
Poverty headcount ratio (percent)	85	30	90	33
Poverty gap ratio (percent)	54	14	56	14
No. of observations	122	330	42	504

Vietnam	South		North	
	1996	2009	1996	2009
Per capital income in PPP, 2005 constant	948	2515	552	1017
Composition of income (percent)				
Agriculture, wage employment	5	1	3	0
Agriculture, self-employment	70	80	65	36
Non-agriculture, formal wage employment	3	9	5	34
Non-agriculture, informal wage employment	8	5	16	18
Non-agriculture, self-employment	14	2	11	10
Remittances and others	—	3	—	2
Total	100	100	100	100
Poverty headcount ratio (percent)	35	19	62	26
Poverty gap ratio (percent)	19	11	28	23
No. of observations	184	160	192	184

[1] Farmers include both owner-cultivators and tenant-farmers.

Bangladesh	Farmer households		Landless households	
	1988	2008	1988	2008
Per capital income in USD PPP, 2005 constant	359	996	262	518
Composition of income (percent)				
Agriculture, wage employment	7	3	36	20
Agriculture, self-employment	72	59	20	24
Non-agriculture, formal wage employment	9	8	15	10
Non-agriculture, informal wage employment	4	3	15	20
Non-agriculture, self-employment	6	10	12	15
Remittances and others	2	17	2	11
Total	100	100	100	100
Poverty headcount ratio (percent)	78	26	89	59
Poverty gap ratio (percent)	39	11	52	21
No. of observations	649	790	582	1,220

Sri Lanka	Farmer households		Landless households	
	1990	2006	1990	2006
Per capital income in PPP, 2005 constant	532	1,461	516	1,248
Composition of income				
Agriculture, wage employment	9	5	15	9
Agriculture, self-employment	29	14	11	3
Non-agriculture, self-employment	10	14	10	14
Non-agriculture, formal wage employment	16	29	21	32
Non-agriculture, informal wage employment	9	9	16	14
Remittances and others	28	30	28	29
Total	100	100	100	100
Poverty headcount ratio (percent)	59	14	65	17
Poverty gap ratio (percent)	24	4	26	5
No. of observations	9,647	9,892	1,265	1,353

4.1. Philippines

In the Philippines, the respondents were divided into farmer and landless groups. Farmer households are those with access to farmland either as owner cultivator, leaseholder, or share tenant. Landless households do not till any farmland and derive their income mainly from casual agricultural wage work mainly in transplanting, weeding, and harvesting. In 1985, farming was by far the most important source of income of farmer households, whereas agricultural wage was an important income source for the landless households. However, nonfarm income consisting of nonfarm wage employment, remittances, and other income sources comprised the largest source of income for both groups in 2008, when real total income increased by about five times for both groups. It is important to mention that remittances and other sources of income comprise more than 30 percent of total household income in 2008 because of the rise in the number of

overseas Filipino workers. The increasing popularity of overseas work among the rural youth could be considered a distinctive feature of the Filipino rural communities. It is also remarkable that the share of formal wage income had increased to roughly 20 percent for both farmer and landless households in 2008. Along with the greater importance of nonfarm income is the decline in poverty incidence from 85 percent in 1985 to 30 percent in 2008 for the farmer households and from 90 percent to 33 percent for the landless households. In addition to the reduction in poverty, the income gap between the farmer and landless households declined with the increasing participation of landless households in nonfarm activities including overseas work. The income share of remittances of landless households rose from 14 percent to 38 percent with a larger portion of these remittances coming from overseas, underscoring the importance of overseas migration in supporting the livelihood of landless households in the Philippines.

4.2. Vietnam

Vietnam was divided into north and south based on the country's sociopolitical and economic history.[2] Essentially, rural Vietnamese households derive their income from two important sources: farming and nonfarm activities. Agricultural wage, remittances, and other sources are largely negligible in both 1996 and 2009. In both the north and south in 1996, farming was the major source of income. In 2009, farming (importantly, rice production) remains the most significant source of income in the south, which is endowed with relatively large land areas. During the period under study, Vietnam achieved rapid growth in rice production and became a major exporter of rice. Household income in the south rose by 2.25 times in USD PPP, alongside the increasing importance of rice production as a source of household income. Yet, despite the boom in rice production, agricultural wage labor market has remained thin because of the acceleration in the use of labor-saving technologies.

High population density has shrunk farm size, and rural households in the north have shifted their economic activities away from rice farming to nonagricultural activities such as wage work in the manufacturing and service sectors as well as self-employment in trade, transport, and commerce. The proportion of household income coming from

[2] Because of the egalitarian distribution of formerly collectively managed land to individual farmers, there are basically no landless households in rural villages in Vietnam.

nonfarm sources rose from 32 percent in 1996 to 63 percent in 2009 so that household income rose by 1.65 times in 2005 USD PPP. In 2009, agricultural self-employment income and nonfarm formal wage income became comparable in the north. Poverty headcount ratio declined from 35 percent in 1996 to 19 percent in 2009 in the south and from 62 percent to 26 percent in the north. In brief, the source of income growth and poverty reduction is different between the south and north Vietnam, depending on the endowment of farm land relative to labor.

4.3. Bangladesh and Sri Lanka

Rice production was by far the most important source of income for farmer households, and agricultural wage (mostly in rice production) was the single most important source for the landless households in Bangladesh in 1988. For landless households, however, nonfarm income was already important in 1988, with a total share of 44 percent, rising to 56 percent in 2008. In contrast, the share of agricultural wage income dropped from 36 percent in 1988 to 19 percent in 2004, which is an indication of the shrinking rural agricultural labor market. The major drivers behind this change are the expansion of rural tenancy markets, rapid adoption of mechanical technology in land preparation and threshing, and increased employment opportunities in the rural transport sector because of the development in rural roads [Hossain and Bayes 2009]. It is also interesting to see the remarkable rise in the share of remittances for both farmer and landless households from a mere 2 percent to more than 10 percent for the period of 20 years perhaps because of the expansion of the garments industry and construction booms in the cities as well as the increasing incidence of overseas migration. The changing structure of household income is accompanied by an income growth (2.77 times for farmer households and 1.98 for the landless households) and a decline in the incidence of poverty (from 78 percent to 26 percent for the farmer households and 89 percent to 59 percent for the landless households). Unlike the Philippines, the rising share of nonfarm income led to the increase in income gap between the farmer and landless households in Bangladesh. In this country, the development of a formal job market is much less advanced than in other Asian countries.

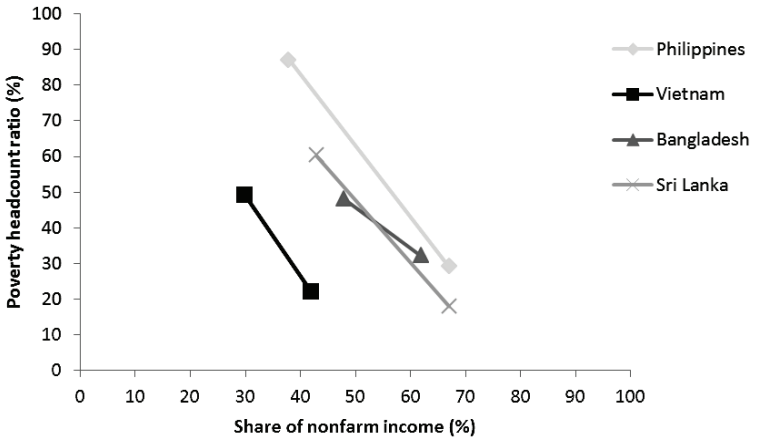
A unique feature of Sri Lankan economy is the large presence of the estate sector, where poverty incidence is most pronounced even today. The estate sector comprises largely the tea and rubber plantation zone

that was established by the British colonizers who brought workers from south India to fill up the rising labor demand in the growing sector [Wenzlhuemer 2007]. According to a study on the Sri Lankan estate sector by the Centre for Poverty Analysis in Sri Lanka (CEPA) in collaboration with the World Bank, low and stagnant wage income vis-à-vis the incessant rise in the cost of living is the strongest factor that prevents the estate people from moving out of poverty. We show income sources for rural households (with the exclusion of urban households) in Sri Lanka because the income structure for urban households did not change much; urban households remain predominantly dependent on nonfarm wage income.[3] Interestingly nonfarm wage income was the most dominant source of rural household income as early as 1990, and its importance had increased further in 2006, indicating that rural households are increasingly allocating their labor away from agricultural activities to nonfarm wage employment in the formal sector. The growing importance of nonfarm wage income also indicates the increasing urbanization of rural areas in which wage employment opportunities in the nonfarm sector have been on the rise. As a result, the share of agricultural wage and farming income among the rural households declined significantly from 1990 to 2006. Concomitant with the rise in the share of nonfarm wage income is the increase in annual household income of rural household by more than 2.4 times and a decline in the poverty headcount ratio in the rural sector from 59–65 percent in 1990 to 14–17 percent in 2006.

It is informative to compare the relationship between share of nonfarm income and poverty ratio (Figure 1). In the four Asian countries, there is an inverse relationship between nonfarm income and poverty ratio, suggesting that participation in the labor market in the nonfarm sector industry and services is an important route to upward income mobility and an escape from poverty (Hayami and Kikuchi [2000]; Lanjouw and Lanjouw [2001]; Estudillo, Sawada, and Otsuka [2008]).

[3] Agricultural wage remained the major source of income of estate households although its share of income declined from 77 percent in 1990 to 46 percent in 2006. Agricultural wage income in the estate is low chiefly because agricultural workers are engaged in simple tasks regardless of whether they work in the peasant or plantation sectors [Hayami 1996]. Yet, the plantation might have been an attractive employer when the nonfarm employment opportunities were limited.

Figure 1. The relationship between nonfarm income share and poverty headcount ratio in four countries in Asia



Source:Table 4

Overall, the Asian case studies demonstrate the increasing importance of nonfarm wage jobs including migrant work in local cities and overseas. The fact that income sources have shifted to nonfarm wage activities implies that rural households view nonfarm work as a far more profitable endeavor than farming, wage work in agriculture, and self-employment in nonfarm sectors. It is also worth pointing out that the share of formal wage employment has been increasing remarkably except in Bangladesh.

5. Job choice

It has become clear that job choice matters in the economic well-being of the rural population in Asia. In this section, the determinants of job choice are more systematically investigated by looking at the characteristics of the workers in each job category. Incentives for farm laborers to work under wage contracts are inherently low, and the cost of monitoring the work efforts of such laborers is exceedingly high in spatially dispersed and ecologically diverse farm environments [Hayami and Otsuka 1993]. Therefore, agricultural wage laborers are employed only for simple tasks amenable to easy supervision, such as grazing draft animals, weeding, planting, harvesting, and threshing, but not for care-intensive activities such as plowing, water and pest management, and fertilizer application. The simple tasks do not require much skill or experience, and the labor demand for such tasks is subject to the seasonality of agricultural

production. Therefore, agricultural wage rates are generally low and the demand for agricultural labor is not only uncertain but also limited. These characteristics explain why agricultural wage income is either low or declining in Asia.

The nonfarm labor market consists of casual (informal) and regular (formal) rural nonfarm and urban job markets. Casual nonfarm jobs include both self-employment (e.g., informal trade and commerce, rural transport, and traditional manufacturing industry) and informal wage work (e.g., domestic work for women and construction work for men). Regular rural employment includes wage employment in the government sector (e.g., teachers, office workers, and rural health workers, who belong to the more educated segment of the rural population) and in the private sector (e.g., factory work and services). Urban jobs are obtained by household members who migrate to major cities and other urban areas.

It is commonly observed that the better-educated rural workers are engaged in more lucrative nonfarm activities that ensure higher returns to schooling. Table 5 shows the average schooling of adult workers in four different labor markets based on the main occupation of the workers in the Philippines, Bangladesh, and Tamil Nadu in India:[4] (1) permanent urban migrant workers, (2) rural nonfarm workers, (3) farmers, and (4) agricultural workers. The data indicate that the urban migrants have much higher education levels than those who stay in rural areas. Since schooling is not as important in farming as in nonfarm jobs, farmers tend to be less educated than rural nonfarm workers. The least educated are the agricultural workers who are engaged in simple farm tasks. In other Asian countries, too, there are clear differences in education levels among rural nonfarm workers, farmers, and agricultural workers (Lanjouw and Shariff [2004]; Kurosaki and Khan [2006]).

While the parents were engaged in agriculture in the Philippines, their adult children occupied highly diversified jobs in the village, local towns, and cities. Occupations in the village and local towns were predominantly unskilled, including jobs in the informal sector, reflecting the increasing demand for these services in the rural areas. In contrast, manufacturing jobs were seldom available. These observations seem to suggest that the growth linkage effects work for the development of service sectors, whose products are largely nontradable, but not for manufacturing sectors, whose

[4] Data for Tamil Nadu are also shown for a comparison, which are taken from Kajisa and Palanichamy [2009].

Table 5. Schooling of permanent migrants, rural nonfarm workers, farmers, and agricultural workers in Asia in 2004

	Average years of schooling
Philippines	
Permanent migrants	11.8
Rural nonfarm workers	9.0
Farmers	8.9
Agricultural workers	7.2
Bangladesh	
Permanent migrants	7.2
Rural nonfarm workers	5.5
Farmers	4.5
Agricultural workers	1.9
Tamil Nadu (India)	
Permanent migrants	10.0
Rural nonfarm workers	8.0
Farmers	5.7
Agricultural workers	2.3

Source: Otsuka, Estudillo, and Yamano [2010:36, Table 7].

products are tradable. In fact, many scholars on rural nonfarm sector believe that urbanization has become the major driver of the development of nonfarm sector rather than agricultural growth. Skilled jobs were held by the more educated children living in the cities and overseas, and many of them were professionals, including nurses, doctors, teachers, and engineers. Professional jobs and overseas work require earlier investments of households in schooling, which was facilitated by an increase in farm income in earlier years [Otsuka, Estudillo, and Sawada 2009]. We also found a growing tendency for the international labor market to accept unskilled workers such as women in domestic work and men in construction work in recent years. These workers were commonly high school graduates with only ten years of schooling or even less. They must have come from the lower income groups, yet they were able to venture into the international labor market partly because job placement fees have become affordable with the mounting competitiveness in international labor markets.

Data were collected on daily wage rates of agricultural, rural casual and regular nonfarm, and urban workers. In Asian countries, the daily wage earnings of a casual nonfarm worker are comparable to or slightly higher than the daily agricultural wage earnings. Even if the daily wage earnings are the same between farm employment and rural casual nonfarm jobs, the fact is that farm jobs are available primarily during the peak seasons, whereas casual nonfarm jobs are less subject to seasonality. Compared with farm and casual wages, the wage rates in regular rural nonfarm and urban labor markets are significantly higher, reflecting higher skill requirements.[5]

On average, the annual income of permanent migrant urban workers is higher than that of full-time rural nonfarm workers in the Philippines (10,752 in 2005 USD PPP for permanent migrants and 5,091 in 2005 USD PPP for rural nonfarm workers). This is particularly the case for migrants from the high-potential agricultural areas, who are more educated than those from the marginal areas, thanks to the rise in income attributed to productivity increases that enabled parents to invest in children's schooling. Such regional difference is not observed in Bangladesh, where the regional income gap is much smaller. Overall, it is clear that in Asia, labor markets are highly segmented in accordance with the schooling level, where the more educated workers tend to find lucrative nonfarm jobs, whereas the uneducated workers tend to be engaged in relatively low-paying jobs including hired labor employment in agriculture.

6. Poverty dynamics and changes in income sources

What income sources are related with poverty and its changes? In order to answer this question, we examine household income composition based on four poverty trajectories shown in Table 6: (1) never poor (i.e., nonpoor in the first and the second period), (2) poverty exit (i.e., poor in the first period and nonpoor in the second), (3) poverty entry (i.e., nonpoor in the first period and poor in the second), and (4) chronically poor (i.e., poor in both periods). Two important observations can be made.[6]

Reduction in rural poverty in the Philippines and Bangladesh was associated with decreasing share of agricultural income and increasing share of formal nonfarm wage income (Tables 6a and 6c). In the Philippines (Table

[5] See Takahashi and Otsuka [2009] for further details on the Philippine case.

[6] We perform this analysis only for three countries, as the panel data are not available in Sri Lanka.

6a), income growth of "never poor" and "poverty exit" groups of households had come from increased formal wage employment and remittances. This holds true for both the farmer and landless households. Landless households have become much less dependent on agricultural wage employment in rice farming, their traditional source of income. The groups of "poverty entry" and "chronically poor" were dependent on agricultural income, including agricultural wage income for the "chronically poor".

Table 6a. Sources of income and poverty trajectories in the Philippines, Vietnam, and Bangladesh

Philippines	Never poor		Poverty exit		Poverty entry		Chronically poor	
	Nonpoor 1985	Nonpoor 2008	Poor 1985	Nonpoor 2008	Nonpoor 1985	Poor 2008	Poor 1985	Poor 2008
Agriculture, wage employment (percent)	3	1	15	2	1	0	20	18
Agriculture, self-employment (percent)	44	33	51	20	66	69	56	24
Non-agriculture, formal wage employment (percent)		26		21		0		0
Non-agriculture, informal wage employment (percent)	↕4	15	↕9	15	↕5	0	↕4	9
Non-agriculture, self-employment (percent)	13	10	16	5	5	0	8	11
Remittances and others (percent)	36	15	9	37	23	31	12	38
Total (percent)	100	100	100	100	100	100	100	100
No. of observations		9		55		2		23

Table 6b. Vietnam

Vietnam	Never poor		Poverty exit		Poverty entry		Chronically poor	
	Nonpoor 1996	Nonpoor 2009	Poor 1996	Nonpoor 2009	Nonpoor 1996	Poor 2009	Poor 1996	Poor 2009
Agriculture, wage employment (percent)	4	0	2	0	2	0	0	0
Agriculture, self-employment (percent)	67	57	81	76	61	18	69	28

Vietnam	Never poor		Poverty exit		Poverty entry		Chronically poor	
	Nonpoor 1996	Nonpoor 2009	Poor 1996	Nonpoor 2009	Nonpoor 1996	Poor 2009	Poor 1996	Poor 2009
Non-agriculture, formal wage employment (percent)	4	20	2	12	3	11	8	6
Non-agriculture, informal wage employment (percent)	11	16	6	4	17	69	4	52
Non-agriculture, self-employment (percent)	14	6	9	4	17	0	19	13
Remittances and others (percent)	na	1	na	4	na	2	na	1
Total (percent)	100	100	100	100	100	100	100	100
No. of observations		129		119		33		36

Table 6c. Bangladesh

Bangladesh	Never poor		Poverty exit		Poverty entry		Chronically poor	
	Nonpoor 1988	Nonpoor 2008	Poor 1988	Nonpoor 2008	Nonpoor 1988	Poor 2008	Poor 1988	Poor 2008
Agriculture, wage employment (percent)	8	3	15	7	16	15	24	22
Agriculture, self-employment (percent)	46	45	57	39	37	42	49	40
Non-agriculture, formal wage employment (percent)	23	11	10	10	22	7	7	8
Non-agriculture, informal wage employment (percent)	10	9	8	12	13	12	11	15
Non-agriculture, self-employment (percent)	7	15	9	14	7	13	8	10
Remittances and others (percent)	6	17	1	18	5	11	1	5
Total (percent)	100	100	100	100	100	100	100	100
No. of observations		149		516		62		510

na – not available

The case of Bangladesh is similar (Table 6c). The income of "never poor" and "poverty exit" groups of households had come from formal wage employment and remittances; the group of the "poverty entry" suffered a sharp decline in formal wage income; and the "chronically poor" depended

on both agricultural wage and self-employment incomes. In Bangladesh and the Philippines, formal wage income and remittances were important contributors to poverty reduction. Second, the case of Vietnam shown in Table 6b is somewhat different. While high and increasing formal nonfarm income is important to be nonpoor in the Philippines and Bangladesh, informal nonfarm wage income was associated with the entry into poverty or to become chronically poor in Vietnam. Given the relatively large farm size in southern Vietnam (1.42 ha in the south versus 0.21 ha in the north), farming is relatively more profitable in the south than in the north. As may be expected, increased income from informal wage jobs did not help farmer households get out of poverty.

Two important conclusions may emerge. First, dependence on agricultural income, particularly agricultural wage income, is not important in getting out of poverty. Second, movement out of poverty is associated with a rise in nonfarm income. Income growth could come largely from participation in nonfarm formal wage work and overseas migration, which require a decent educational background that the poor hardly possess. Furthermore, creation of formal jobs is the difficult challenge for the governments of developing countries. The data show that while the poor participate in the rural labor market through active involvement in informal wage jobs (where even the workers with less education and skills could be accommodated), moving out of poverty is highly associated with participation in formal wage work.

7. Concluding remarks

Increasing nonfarm income clearly contributed to the improved living standards and poverty reduction in rural areas of Asia. Strong dependence on farming as a main source of household income will not be conducive to the improvement of living standards. Furthermore, this study found that not only the "quantity" of nonfarm jobs but, more important, their "quality" matters in the improvement of living standards and poverty reduction in Asia. Indeed, access to formal nonfarm jobs plays an important role in assuring a decent income and preventing rural households from falling into poverty in Asia. Also in Asia, remittances have become an important source of rural household income, which depends on the development of nonfarm sector in rapidly growing Asian economies as well in the rapidly integrating international labor markets.

A difficult policy issue arises from the fact that the poor are concentrated in informal jobs. Thus, in order to reduce rural poverty considerably, it is not enough to create nonfarm jobs; lucrative nonfarm jobs must be created. To do so, either wage rates in informal sectors should increase or many of the informal sectors must be transformed into formal sectors. Improving the rural investment climate through investment in infrastructure and the provision of credit will be helpful. To date, our empirical knowledge on this issue is far from adequate.

The argument that nonfarm income is a major driver of income growth for rural households does not imply that agricultural development does not contribute to the improvement of living standards and poverty reduction. On the contrary, the development of agriculture stimulates the development of nonfarm sectors through production and consumption linkages (Christiaensen, Demery, and Kuhl [2011]; Haggblade, Hazell, and Dorosh [2007]). Furthermore, increased farm income among Asian households tends to be invested in schooling of children, who later seek nonfarm jobs [Otsuka, Estudillo, and Sawada 2009]. A supply of better-educated labor to nonfarm sectors must have contributed to their development. A balanced development strategy for both farm and nonfarm sectors is clearly needed to achieve the twin goals of improving living standards and reducing rural poverty.

References

Christiaensen, L., L. Demery, and J. Kuhl [2011] "The (evolving) role of agriculture in poverty reduction: an empirical perspective", *Journal of Development Economics* **96**(2): 239–254.

David, C. and K. Otsuka, eds. [1994] *Modern rice technology and income distribution in Asia*. Boulder, CO: Lynne Rienner Publishers.

Estudillo, J. P., Y. Sawada, K. Kajisa, N. Fuwa, and M. Kikuchi [2011] "The transformation of Hayami's village" in: K. Otsuka and K. Kalirajan, eds., *Community, market and state in development*. Hampshire, England: Palgrave Macmillan.

Estudillo, J. P., Y. Sawada, and K. Otsuka [2008] "Poverty and income dynamics in Philippine villages: 1985–2004", *Review of Development Economics* **12**(4): 877–890.

Haggblade, S., P. Hazell, and P. Dorosh [2007] "Sectoral linkages between agriculture and the rural nonfarm economy" in: S. Haggblade, P. Hazell, and T. Reardon, eds., *Transforming the rural nonfarm economy: opportunities and threat in developing world*. Baltimore: John Hopkins University Press: 141–182.

Hayami, Y. [1996] "The peasant in economic modernization", *American Journal of Agricultural Economics* **78**: 1157–1167.

Hayami, Y. and M. Kikuchi [2000] *A rice village saga: three decades of green revolution in the Philippine*. London: Macmillan Press.

Hayami, Y. and K. Otsuka [1993] *The economics of contract choice: an agrarian perspective.* Oxford: Clarendon Press.

Hossain, M. and A. Bayes [2009] *Rural economy and livelihoods: insights from Bangladesh*. Dhaka: A H Development Publishing House.

International Fund for Agricultural Development (IFAD) [2000] *Rural poverty report 2001: the challenge of ending rural poverty*. Rome.

International Fund for Agricultural Development (IFAD) [2010] *Rural poverty report 2011: new realities, new challenges; new opportunities for tomorrow's generation*. Rome.

Kajisa, K. and N. V. Palanichamy [2009] "Income dynamics and schooling investments in Tamil Nadu, India, 1971–2003: changing roles of land and human capital" in: K. Otsuka, J. P. Estudillo, and Y. Sawada, eds., *Rural poverty and income dynamics in Asia and Africa*. Abingdon, UK: Routledge.

Kumanayake, N. S. [2011] "Structural transformation and poverty reduction: a view from three sectors in Sri Lanka", PhD dissertation, National Graduate Institute for Policy Studies, Tokyo.

Kurosaki, T. and H. Khan [2006] "Human capital, productivity, and stratification in rural Pakistan", *Review of Development Economics* **10**(1): 116–134.

Lanjouw, J. and P. Lanjouw [2001] "The rural non-farm sector: issues and evidence from developing countries", *Agricultural Economics* **26**(1): 1–23.

Lanjouw, P. and A. Shariff [2004] "Rural non-farm employment in India: access, income and poverty impact", *Economic and Political Weekly* **39**(40): 4429–4446.

Otsuka, K., J. P. Estudillo, and Y. Sawada [2009] *Rural poverty and income dynamics in Asia and Africa*. London and New York: Routledge.

Otsuka, K., J. P. Estudillo, and T. Yamano [2010] "The role of labor markets and human capital in poverty reduction: evidence from Asia and Africa," *Asian Journal of Agriculture and Development* **7**(1): 23–40.

Otsuka, K. and F. Place [2001] *Land tenure and natural resource management: a comparative study of agrarian communities in Asia and Africa*. Baltimore: Johns Hopkins University Press.

Reardon, T., J. Berdegue, C. B. Barrett, and K. Stamoulis [2007] "Household income diversification into rural nonfarm activities" in: H. Haggblade, P. B. R. Hazell, and T. Reardon, eds., *Transforming the rural nonfarm economy*. Baltimore: Johns Hopkins University Press.

Takahashi, K. and K. Otsuka [2009] "Human capital investment and poverty reduction over generations: a case from rural Philippines, 1979–2003" in: K. Otsuka, J. P. Estudillo, and Y. Sawada, eds., *Rural poverty and income dynamics in Asia and Africa*. London and New York: Routledge, 89–119.

United Nations (UN) [2012] *The millennium development goals report 2012*. New York.

Wenzlhuemer, R. [2007] "Indian labor immigration and British labor policy in nineteenth-century Ceylon", *Modern Asian Studies* **41**(3): 575–602.

World Bank [2011] *World development indicators*. Washington, DC.