

## **The role of migration on poverty reduction in Indonesia: A quest on the migrants' welfare before and after migration<sup>1</sup>**

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### **Abstract**

It is theoretically argued that there is a strong linkage between migration and poverty. Migration can be treated as an alternative to improve individuals' welfare and to minimize the risk of being prone to poverty. Meanwhile, poverty itself at the same time facilitates people to leave the land. In many developing countries, like Indonesia, migration is seen as a coping strategy to step out of poverty. Migration is a common phenomenon for many Indonesian who cannot find jobs in their homes due to lack of employment opportunities and limited sources, tried to search for fortunes in destination. Many studies on migration have found that migrants on the average are better than non-migrants. However little is known to what extent that migration process can improve migrants' welfare and to step them out of poverty. This study wants to shed lights on this issue.

Like education and health, migration is seen as human capital investment in that an individual decides to move to a new place, scarifying time and money to gain benefits in the future. In this view, potential migrants considered the benefits and loss of migration process before hand, while decision to migrate is taken if and only if the benefits outweigh the cost of migration. Even though the level of uncertainty to have jobs in destination is high, the potential migrant is willing to move as long as the expected net benefit from migration is existed. The theory suggests that a migrant is an oriented economic person which is only moving if there is a positive expected net benefit of migration. However, the theory does not underline that migrant is a selective person from population. Their decision whether to migrate or not does not only depend on the expected income in the future time. There is an unobservable factor that embedded to each potential migrant which strongly influences their decision to migrate.

The empirical findings of this study is based on longitudinal datasets of Indonesia Family Life Survey (IFLS) 1993 and 2000 which contain a rich and dense information on migration history of individuals over the years. The data allows analyzing socio economic conditions of individuals before and after migration. Another virtue is that the data set provides information on earnings so that it is possible to measure the welfare of people before and after migration and to estimate the earnings of those who did not work prior to migration. Unit of analysis of the study is all individuals age 15 above in 1993 and following them to 2000. A two steps Heckman model is applied to estimate wages in 1993 and 2000.

The empirical findings reveal the amount of wage received after migration is higher compared to prior to migration. Health and educational attainment play a crucial role in determining the amount of wage received. In addition, as expected, formal sector offers higher wage than informal sector. In contrast, the effect of gender disparity on wage is gradually decreasing over the years. The greater wage received by migrant workers after migration taken place has improved their welfare and put them away from poverty. The higher wage received by migrant workers could be translating into the benefit from migration, that could be utilized to improved their human capital investment. In addition, the wage surplus potentially can be used to assist new migrants.

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## 1. Background

It is theoretically argued that there is a strong linkage between migration and poverty. Migration can be seen either as the cause of poverty or can be the source of poverty (Skeldon, 2003, 2012). Migration occurred due to deprivation can be seen as livelihood strategy to improve individuals' welfare and to minimize the risk of being prone to poverty (Stark, 1991). In short, poverty itself at the same time facilitates people to leave the land (Skeldon, 2002). Meanwhile, migration can also be the source of poverty in destinations because some migrants failure to get benefit from migration. They might be living in slum areas and working in the informal sectors and having difficulties to access public facilities (Sharma, 2011). Regardless the ambivalence relationships between migration and poverty and the uncertainty benefits from migration, the number of people migrating is increasing over the years, in particular internal migration which is reached 700 million people throughout the globe (UNDP, 2009).

In many developing countries, typically in Indonesia, migration is not a new phenomenon and is seen as a livelihood strategy to cope the situation in the origin (Hugo, 1997; ILO, 2004). Migration seems as a flight from poverty and deprivation, where there are no opportunities available in the origin. Lack of arable land and unwillingness to work in the agriculture sector which used to be the symbol of poorness are some factors that triggered people to migrate. Statistics show that number of migrants is increasing over the years and based on the latest data from Indonesia Population Census, the number of recent migrants is more than 5 million people and are dominated by working population group (BPS, 2011). With regards to their motivation to migrate, the latest 2005 inter censal census revealed that 40 per cent of migrants moved due to job related, either transferring or looking for a job and nearly 7 per cent due to schooling migration (BPS, 2009).

It is theoretically argued that migration is predominantly by young people at their productive age who are in the transition phase from schooling to working life. At this stage, migrants potentially can accrue greater benefits from migration (Sjastaad, 1962) and are less likely to tie to the origin (Beshers & Nishiura, 1961). Further, as many of them are the new entrance in the labour market, so migration facilitates them to find a new jobs in destination. Later, this theory is modified and stated that migration is continuously taking place as long as the expected benefit is existed regardless the presence of uncertainty, such as high unemployment

rate in destinations (Titus, 1978; M. Todaro, 1980; M. P. Todaro, 1969, 1976). Therefore, it can be said that as far as there is a positive differences in the expected earnings between origin and destination, the flow of labour migration is perpetuated.

Migration is a common phenomenon for many Indonesian who cannot find jobs in their homes due to lack of employment opportunities and limited sources, tried to search for a fortune in destination (Hugo, 2001). On the same time, a variety of urban jobs available attract people to seek for new jobs or to earn better wages in destination. In addition, a rigidity urban labour market caused many migrants entering informal sectors which do not required certain level of skills and knowledge. Even though many of them are in the informal sectors, their standard of living is improved and is getting better compared to the condition prior to migrating. Hence, expectation to earn better wages and to have a better life basically drives migration.

At Indonesian context, many studies have examined and contrasted the wages and the standard of living of migrants in destinations and found out that migrants gained benefit from migration (Harfina, 2008; Priyanto, 1991; Resosudarmo, Suryahadi, Purnagunawan, Yumna, & Yusrina, 2009). The overall findings suggested that the welfare of migrants is improved towards migration and migrants are better off than non-migrants. However, earlier studies do not describe explicitly the improvement's level of migrants' welfare and to what extent the wage they earned in destinations lifted their welfare. Thus, it creates rooms to investigation and this study likes to fill the gap.

The structure of the paper will be organized as follows the first section is the background of the study then followed by literature reviews discusses some theoretical background and previous studies. The third section describes the source of data and study method applied in this study while the fourth section narrates descriptive of the data while the last section discusses statistical findings and conclusion of the study.

## **2. Literature review**

Like education and health, migration is seen as an investment in human capital, that is a process of increasing productivity of human resources (Sjastaad, 1962). Decision to migrate is influenced by the present value of the difference in income streams between all possible locations and cost of moving, in term of monetary and psychological costs. In this view,

potential migrants considered the benefits and loss of migration process before hand, while decision to migrate is taken if and only if the benefits outweigh the cost of migration. The younger the migrant the longer he gains benefits from migration. While human capital plays a crucial role, better educated migrants tend to move further distance to gain higher return to education (Détang-Dessendre, Goffette-Nagot, & Piguet, 2008; Frey, 1995; Newbold, 1998).

The theory then modified by Todaro (1969), proposed that in less developed countries, migration is mostly taking place between rural urban areas or could be translating as migrating from a less developed to a more developed area. The risk of migration is translating as an employment uncertainty in destination, indicated by the level of destinations' unemployment rate. Migration will be continuously taking place as long as the expected net benefit from migration is positive regardless the level of employment uncertainty in destinations.

The above theory suggests a migrant is an oriented economic person (Sjastaad, 1962), a non-random part of population (Lee, 1966). In other words, out of numerous factors influencing potential migrants, economic factor, either to seek for a new job or to pursue a higher wage in destination seems to be the most powerful factor to determine migration decision making. Further, it is always worthwhile to note that albeit the overall condition is in favor to migration, not all people are willing to migrate. In other words, regardless the same treatment is provided to support migration, there is an unobservable variable attached to each individual that influenced their act towards migration (Agesa, 1999, 2001; Harfina, 2008; Lee, 1966). This unobservable variable could be the level of willingness to migrate and the impulse to leave homes. Therefore, there are some people who are easily persuaded to migrate while others tend to hardly affected.

Apart from personal preference on migration, the economic discrepancies across regions contribute to the process as well. Adopted from Todaro (1969), a study in the Philippines found that the flow of migration is influenced by the level of wage offered in each destination (Sanders & Brown, 2012). The greater the wage offered in a specific area the higher the number of migrants flocking to that area. At individuals level, (Agesa, 1999, 2001; Détang - Dessendre, Drapier, & Jayet, 2004; Harfina, 2008; Resosudarmo, et al., 2009) found that there is a significant differences between wage received by migrants and non-migrants. In this case, migrant responses positively to the positive wage gap by migrating to the area offered the

highest wage gap. Young, single and educated males are more likely to migrate compared to their counterpart. Meanwhile household characteristics such as land ownership decreased the chance to migrate. However, earlier studies focused on the comparison of wages between migrants and their counterpart and did not provide evidence of the changes of migrants' relative wage before and after migration which could reflect the genuine improvement of migrants' welfare.

In destinations, some migrants directly involved in the economic activities while others probably decided to postpone entering the labour market. There is at least one reason why some working age population decided not to involve in the labour market because their reservation wages are not equal or higher than the wage offered. Instead of participating in the labour market, many of them decided to go back to school to complete education before applying for jobs. Another alternative, they keep looking for specific jobs that suitable for their reservation wage. As a consequence, data on wage only available for people who are working. If wage estimations rely solely on this dataset, the overall estimation will be bias because the estimation excluded some working age population who do not participate in the labour market. Therefore, a two steps Heckman (Handayani, 2006; Harfina, 2008; Heckman, 1979; Pasay, 2007) will be adopted to estimate wage both before and after migration taking place. The same scenario is applied for migration because not all people are willing to participate in migration.

### **3. Data and model specification**

This study uses Indonesia Family Life Survey (IFLS) for 1993 and 2000. The unit of analysis is working age population (age 15 above) in 1993 and then following them into 2000. IFLS covers 7200 household at 13 provinces in Indonesia, four provinces in Sumatera island (North Sumatera, West Sumatera, South Sumatera, Lampung); 5 provinces in Java island (DKI Jakarta, West Java, Central Java, Yogyakarta and East Java); and the other 4 provinces namely Bali, West Nusa Tenggara, South Kalimantan and South Sulawesi.

The datasets provide wage data only for those who are working, meanwhile for those who are not, data is not available. In other words, only some individuals in the population held wage data. Utilizing Ordinary Least Square will create bias due to sample selection. The same scenario is also true for migration during 1993 and 2000. Decision to migrate is a selective process which affects certain people with unique characteristics. Not all people are willing to

migrate. There are some groups of people who are migrating during the interval period while some others remain in the origin. In this case, truncated sample arises as the result of selectivity in decision to migrate and in participation to work. Thus, to get insight on how migrants' welfare, in particular the level of their wage prior to and after migration taking place, a two steps Heckman (Heckman, 1979) model along with Mincer wage estimation (Mincer, 1974) will be utilized in this study.

The wage equations for 1993 and 2000 will be as follows:

$$\ln W_i = \beta_0 + \beta_i X + \varepsilon_i \dots\dots\dots(3.1)$$

$\ln W_i$  is natural logarithm from wage received by workers in 1993 and 2000,  $\beta$  and  $\varepsilon$  are wage determinant coefficients and *error term*. In the *Ordinary Least Square* (OLS) method, the wage data is assumed to be distributed evenly,  $E(\varepsilon_i) = 0$ . However, it is known that wage data is available only for those who earned. Wage data for those who are working but not for money or those who are not working as their reservation wage is not equal to its offering wage, will not be recorded. Hence, the data is truncated, and if only using the partial wage data, the estimation would be bias.

A two steps Heckman method will be applied to overcome the bias. The first step is to estimate the probability to work of individuals who have wage data. The function is based on the cumulative normal probability function and assumes there is a theoretical *continuous index*,  $Z_i$ , which depends on X variables, namely:

$$Z_i = \alpha + \beta X_i \dots\dots\dots(3.2)$$

The data of  $Z_i$  is not available, what available is categorical data, refers "yes" (code=1) or "no" (code=0). Afterwards this model assumes that  $Z_i^*$  is normally distributed random variable.

$Z_i^*$  explains the critical cut off value which indicates the decision to work or not. Thus, probability to work is happened if  $Z_i$  is greater than or same as  $Z_i^*$ . Mathematically:

$$P(Z = 1) = P(Z_i \geq Z_i^*) = 1 - F(Z_i) \dots\dots\dots(3.3)$$

$F(Z_i)$  is *cumulative normal probability function* :

$$F(Z_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Z_i} e^{-t^2/2} dt \dots\dots\dots(3.4)$$

Since Probit function is normally distributed with mean equals zero and standard deviation equals one, so equation (3.4) becomes :

$$P(Z = 1) = P(Z_i \geq Z_i^*) = F(Z_i) \dots\dots\dots(3.5)$$

Then the equation of  $F(Z_i)$  is :

$$F(Z_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Z_i} e^{-z_i^2/2} dZ_i \dots\dots\dots(3.6)$$

Next is the probability density function:

$$f(Z_i) = \frac{1}{\sqrt{2\pi}} e^{-(Z_i)^2/2} \dots\dots\dots(3.7)$$

Then, the estimation of participation to work would produce a hazard variable  $\lambda$ , which is called *inverse Mills Ratio* as a correction variable to eliminate selectivity bias because sample is truncated (Heckman. 1979). The value of  $\lambda$  (*inverse Mills ratio*) is:

$$\lambda_i = \frac{f(Z_i)}{1 - F(Z_i)} = \frac{f(Z_i)}{F(-Z_i)} \dots\dots\dots(3.8)$$

Where  $f(Z_i)$  and  $F(Z_i)$  are density and cumulative density function from normal standard variables. Involving  $\lambda$  into equation (3.1) can eliminate bias of truncated sample. Equation (3.1.) is modified as follows :

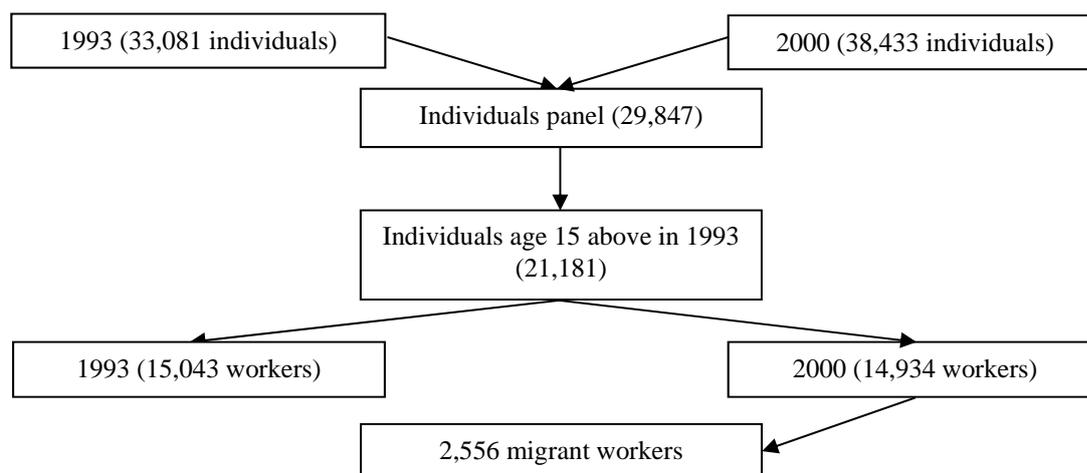
$$\ln W_i = \alpha + \beta X_i + \gamma \lambda_i + \varepsilon_i \dots\dots\dots(3.9)$$

**Table 3.1.Variables, legends, concepts, question code and scale**

Variables	Legends	Concepts	Question Code		Measurement
			1993	2000	
(1)	(2)	(3)	(4)	(5)	(6)
Migration status	m	Member of household age 15 + migrate >=6 months, for the sake of one's job		Mg20, Mg28, Mg29	0. non migrants 1. migrants
Monthly wage	w	Earning sourced from wage and salary or benefit from business	Tk25, Tk26	Tk25, Tk26	In terms of 000 rupiah
Employment status	tk	Work >=1 hour continuously a week ago and received cash	Tk01, Tk02, Tk03, Tk04	Tk01, Tk02, Tk03, Tk04	0.not working 1.working
Age	age	Based on last birthday	Ar09yr	Ar09y	In years
Sex	jk	Male or female	Ar07	Ar07	0.female 1.male
Education	year	Years of schooling	Ar16, Ar17	Ar16, Ar17	In Years
Marital status	kwn	Married or not/not yet married	Ar13	Ar13	0.married 1.not/not yet married
Health status	sht	Health condition	Rn00	Kk01	0.not/a bit not healthy

					1.healthy
Occupation status	stkerja	Based on formal and informal	Tk24a	Tk24a	0.informal 1.formal
Location	tt	Place of residence	Sc05	Sc05	0.rural 1.urban
Household size	uk	Number of household member who share house and foods	Ar00b	Ar00d	In terms of people
Children age <5	balita	Member of household age below 5	Ar09yr	Ar09y	0.no 1.yes
Children at school age	cas	Member of household at schooling age	Ar18	Ar18c	0.no 1.yes
Spouse employment status	spw	Spouse who work >=1 hour continuously a week ago and received cash	Ar22	Ar15a	0.not working 1.working
Asset	aset	Including house, land, ride, jewelry and other asset	Hi03A-k	Hr05A-k	In terms of 000 rupiah
Transfer	trans	Including money from other parties, pension and others.	Tf05, Tf09, Hi14,	Tf06, Hi14, Ar15b	In terms of 000 rupiah
Family formation	bentuk	Based on composition of household member	Ar00b	Ar00d	0.extended 1.nuclear

**Graph 3.1. The selection process of getting the unit of analysis from 1993 and 2000 IFLS**



The above chart shows how the unit of analysis for the study is selected. Initially, individuals in 1993 were followed to 2000 in order to trace a group of panel individuals. In total there are 29,847 individuals panel, and 21,181 of which are individuals age 15 above in 1993. From this group, it is known that 15,043 of them were working in 1993 and 14,934 were working in 2000. Meanwhile, from a group of workers in 2000, it is known that 2556 of them were migrants. Technically, the idea of this study is to estimate relative wage of migrant workers in 1993 and 2000 and to investigate whether there is real improvement on the wage received before and after migration.

#### 4. Descriptive analysis

Table 4.1 below provides information on social demographic characteristics of individuals who worked in 1993 and 2000. Of the total labor force in 1993 and 2000, there were about 70 percent who worked.

**Table 4.1. Social demographic characteristics of Workers in 1993 and 2000**

Characteristics		1993		2000	
		%	N	%	N
<i>(1)</i>		<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>
Age (year)					
	15-29	68.79	8601	70.54	2832
	30-55	73.15	10147	71.70	13308
	>55	70.03	2434	67.34	5041
Sex					
	Male	71.99	10579	77.61	11092
	Female	70.05	10602	62.69	10089
Education					
	<=Primary School	72.48	14238	71.18	13758
	Junior High School	73.31	3117	73.04	2326
	Senior High School	65.14	2659	71.43	3010
	>Senior High School	60.58	1167	61.91	2087
Health status					
	Healthy	70.29	18757	71.08	18538
	Unhealthy	76.65	2424	66.48	2643
Marital status					
	Not/ever married	68.67	5716	65.73	3169
	Married	71.89	15465	71.35	18012
Occupational status					
	Formal	100.00	8980	100.00	9520
	Informal	49.69	12201	46.43	11661
Household size ( <i>mean</i> )		2.35		2.12	
Spouse status					
	Working	69.31	10087	72.29	13499
	Not Working	72.58	11094	67.37	7682
Children below age 5					
	Have	72.51	10598	73.28	13471
	Not have	69.53	10583	65.67	7710
Children at school					
	Have	70.93	18123	70.67	17964
	Not have	71.55	3058	69.60	3217
Family formation					
	Nuclear	71.48	18833	70.86	18369
	Extended	67.33	2348	68.21	2812
Assets (thousand rupiahs)					
	<500	73.43	13791	75.56	7414
	500-2000	69.28	4617	68.78	5966
	>2000	61.94	2774	67.03	7802
Transfer (thousand rupiahs)					
	<500	74.92	17505	77.39	13961
	500-2000	54.69	2030	57.52	4744
	>2000	49.64	1645	56.59	2476
Location					
	Urban	65.90	11014	65.69	10387
	Rural	76.57	10167	75.14	10794
<b>Total</b>		<b>71.02</b>	<b>21181</b>	<b>70.51</b>	<b>21181</b>

It is seen that the biggest proportion of workers is found at medium age group (30-55) both in year 1993 and in 2000. The proportion of men involved in the labour market was increasing over 1993-2000, in contrast the proportion of women who were working is slightly reduced. There was an improvement in the level of education of workers prior and after migration. The proportion of workers completed senior high school increased significantly. Those who hold university degree also increased slightly. In terms of health status, it could be said that the health condition of workers in 2000 was much better than in 1993 by looking at the reduction on the proportion of workers who were unhealthy over that period.

According to the household characteristics, it is noted that the size of the household of workers in 2000 was slightly smaller than that in 1993. On another matter, the proportion of the spouse who worked is increasing. The fact that more spouse are in the labour market could be the reason why the household size in 2000 is getting smaller. With regards to the spatial location, it is noted that the proportion of workers resided in rural areas is reducing over time.

Information on social and demographic characteristics of migrant workers before and after migration is revealed in table 4.2 below. It is important to highlight here that this subset of data is referred to a group of individuals' panel who migrated and worked in 2000. However, it is not possible to determine if this group of individuals was also working in 1993.

There were about 12 per cent of workers in 2000 with migrant status. In other words, there are as many as 2556 panel respondents who were migrating during 1993 and 2000. It is noted that the proportion of migrant workers is distributed evenly across age groups in 2000, though a bigger proportion is at the middle age group. Most noteworthy, however an increase proportion of migrants age 55 above. Among workers aged 55 above in 2000, 11 per cent of them were migrants, a quite bigger proportion as it compared to 8 per cent in 1993. There are at least two reasons to understand the figure firstly it could be approach from the simple analysis of cohort as people are getting old so the proportion of people at the older group is increasing. Secondly, it could explain the phenomenon of active ageing, as they migrated and in the labour market at that moment.

With regards to the level of education, it is seen that there is an improvement of human capital attainment for the whole population as well as for migrant workers. In terms of health status, the proportion of migrant workers who felt healthy remains the same over two periods of time

while the proportion of migrant workers who considered themselves unhealthy increased. In 1993, out of total population who felt unhealthy, 7 per cent of them are prospective migrants and this figure was doubled in 2000.

It is interesting to find out that over the periods, the proportion of population who were married is increasing significantly, but the proportion of migrant workers who were married is gradually decreasing. With regards to the occupational status, it is clearly seen that the proportion of individuals engaged in both formal and informal sector of economy increases over time. Across year 1993 and 2000, the proportion of migrant workers engaged in informal sector increases slightly from 8 to nearly 11 per cent. Meanwhile the proportion of those who are working in the formal sector is increases nearly twofold, from 10 per cent in 1993 to nearly 18 per cent in 2000. These figures could be used as a prompt indicator that, as expected by the theory that, migration process is mostly a form of labour migration. Further, it could also depicts the labour market situation for migrants in destination that somehow is getting better as many more people are now engaging in formal sector than informal sector. In other words, the employment of migrants in destination is getting better and secured.

In terms of household characteristics, the overall picture shows that the household size of migrants is getting smaller and in most cases migrants are living with their nuclear family. Further, the proportion of spouse who were working slightly increased but the proportion of migrant' spouse who were working is doubled. It is also noted that the proportion of migrant workers living in an extended family is declined over time. Meanwhile, it can be seen that once individuals migrated, the proportion of transfer and kind of assets they had is decreasing.

The most striking finding yet expected is the amount of money earned by individuals who worked before and after they migrating, shows a dramatic increased. Before migration, the biggest percentage of migrants earned less than Rp. 500 thousand monthly and only small portions of them who earned above Rp. 2 million. In contrast, there were nearly one third of migrants earned above Rp. 2 million in 2000 the percentage is increase to about tenfold. The huge improvement in the wage earned by migrants in destination has proven why wage differentiation is the most powerful factor for migration. In short, it can be said that, regardless the effect of inflation which could influence the amount of wage received in 2000, there is an improvement in standard of living of migrants. Their welfare is lifted up once they migrated.

**Table 4.2. Social Demographic Characteristics of Migrant Workers in 1993 and 2000**

Characteristics	1993		2000	
	%	n	%	n
(1)	(2)	(3)	(4)	(5)
Age (year)				
15-29	11.90	8601	11.75	2832
30-55	13.02	10147	12.52	13308
>55	8.70	2434	11.04	5041
Education				
<=Primary School	12.23	14238	11.86	13758
Junior High School	8.34	3117	11.99	2326
Senior High School	11.40	2659	10.80	3010
>Senior High School	21.59	1167	15.33	2087
Health status				
Healthy	12.76	18757	11.80	18538
Unhealthy	6.72	2424	13.96	2643
Marital status				
Not/ever married	8.24	5716	4.76	3169
Married	13.48	15465	13.35	18012
Occupational status*)				
Formal	10.05	8980	17.78	9520
Informal	8.63	12201	10.77	11661
Household size (mean)	2.21		2.09	
Spouse status				
Working	6.98	10087	11.91	13499
Not Working	16.69	11094	12.34	7682
Children below age 5				
Have	10.85	10598	9.24	13471
Not have	13.29	10583	17.00	7710
Children at school				
Have	12.52	18123	12.69	17964
Not have	9.39	3058	8.61	3217
Family formation				
<i>Nuclear</i>	11.94	18833	12.68	18369
<i>Extended</i>	13.07	2348	8.04	2812
Assets (thousand rupiahs)				
<500	7.10	13791	13.21	7414
500-2000	14.58	4617	11.29	5966
>2000	32.56	2774	11.58	7802
Transfer (thousand rupiahs)				
<500	7.40	17505	10.98	13961
500-2000	34.82	2030	17.96	4744
>2000	33.68	1645	6.88	2476
Wage (thousand rupiahs)*)				
<500	13.26	14379	19.14	9849
500-2000	8.44	522	12.01	4729
>2000	3.46	142	28.98	355
Wagegap (thousand rupiahs)*)				
<500			24.45	9234
500-2000			10.99	1660
>2000			57.08	202
Location				
Urban	10.84	11014	11.76	10387
Rural	13.40	10167	12.37	10794
<b>Total</b>	<b>12.07</b>	<b>21181</b>	<b>12.07</b>	<b>21181</b>

Note: \*) only for those who worked in 1993

## 5. Inferential Findings

As it is mentioned earlier, migrants' welfare is measured by wage estimations over two points of time. Wage estimations is using correction bias factor as one of explanatory variables. Correction bias factor, known as inverse mills ratio is derived from participation to work for 1993 and 2000. Later, the same procedure is used to estimate wage of migrant workers, however inverse mills ratio is estimated from participation to migrate of all workers in 2000.

Table 5.1 below provides wage estimations for all individuals in 1993 and 2000 and also wage of migrant workers in 2000. It is worthwhile to note that estimations of wage for 1993 and 2000 covers all individuals regardless their employment status, whether they are working or not. Meanwhile, estimations of wage for migrant workers is covered only to those who migrated between 1993 and 2000.

The findings show that, as expected, for every unit increase of age, the unit of wage received would increase as well. In 1993, individuals received the highest wage at the age of 44, meanwhile, a quite younger age, 40 years of age, received the greatest wage in 2000.

A younger peak age could be translating as an improvement in the productivity of workers which leads to a faster time to gain high wage. In turn, the state of welfare during this period is increasing. The greater improvement of productivity however is made by migrant workers. The highest wage is received when migrants' age is at 39 years old. A 5 year gap of age could be translating as welfare acceleration made after migration. By migrating, workers benefit 5 years faster of gaining highest wage from labour market. In other words, migrant workers having a longer time of experiencing high wage compared to the other two groups.

The effect of education, as expected, plays a crucial role in determining the level of wage received by workers. In 1993, individuals who spent at most 13 years at school received the highest rate of return to education. Seven years later, the highest wage received by workers who spent at least 16 years at school, for both migrants and non-migrants. It can be said that over the periods, workers accumulated their human capital attainment which produced a higher rate of return to education. In turn, it gives a significant improvement on their wages. Later, by spending 16 years at educational institution, those who gained highest wage in 2000 were those who hold a university degree. A gap of 3 years in schooling could be the result of the awareness of individuals for completing higher education. The mechanism of completing

education could be made in two ways first individuals migrated and completed education before signing for a job or second, individuals doing job and school at the same time right after they migrated. To conclude, it is not surprising if there is an improvement in the productivity of workers during this period of time as they are getting educated.

It is theoretically argued that, productivity of workers is influenced not only by their level of education but also their health well-being. During 1993-2000 the health status of individuals was improving and led to an increase in the amount of wage they received. Hence, a good combination of higher level of education and better health leads to a good progress in the level of productivity which effect the amount of wage received. However, the effect of health on the wage of migrant workers slightly decreased after they migrated.

On another matter, it is clearly seen that the effect of gender disparity on wages is gradually decreasing over time. In 1993, male workers received wages 1.2 per cent higher than female workers, wage differences was slightly decreased in 2000. Later, gender disparity is nearly diminished among migrant workers. It is estimated that the gender wage gap across migrant workers was below one percent. However, the scenario is not true if the interaction is made between sex and other variables. For instance, interaction between sex and health status produced a significant wage gap. The interaction between sex and occupation status also creates gender bias on the wage received by migrant workers. To conclude, even though it is true that the effect of sex as a single variable on wages of migrant workers is decreasing over the years, the interaction between this variable with other explanatory variables creates gender disparity.

In contrast, the effect of residential status contributes to the wider wage gap received by workers. It shows workers who lived in urban areas received wage 5 percent higher than those who lived in rural areas in 1993. The difference of wage is getting wider in 2000 in that those urban workers received wage nearly 7 per cent higher than their counterpart. In addition, the effect of residential location to wage gap is slightly higher for migrant workers. Taking other factors as constant, wage differentials across regions could be the chief reason behind the migration process. Therefore, as the wage gap across regions is getting wider, the migration flows probably is getting higher.

In terms of occupational status, it is theoretically argued that formal sector offers better wages along with job securities than informal sector. On the other hand, informal sector described as dangerous, dirty and difficult job with the absence of job insurance. However, formal sector requires certain level of educations and skills and tight competition among individuals to enter labour market. In contrast, there is no such particular level of expertise required to enter informal sector. In many cases, informal sector tend to be a buffer for those who failed to enter formal sector or as temporary jobs for the new entries in the labour markets. Findings show that there is an increasing on the wage gap between formal and informal sectors. In 1993, those who worked in formal sector received wages 3 per cent higher than those who engaged in informal sector. The wage is getting divergence in 2000 in that formal sector offered 4 per cent wage higher than informal sector. In addition to that, migrant workers who worked at formal sector experienced much higher wage compared to those who involved in informal sector.

**Table 5.1. Wage estimations for working age population in 1993, 2000 and for migrant workers**

Variables	1993		2000		migrant workers	
	Coefficient	t	Coefficient	t	Coefficient	t
(1)	(2)	(3)	(4)	(5)	(6)	(7)
age	0.072	12.00	0.058	17.94	0.075	8.53
age-square	-0.001	-2.02	-0.001	-3.23	-0.001	-2.62
health	0.014	4.67	0.025	18.01	0.012	4.13
occupation	0.027	5.40	0.042	5.06	0.046	6.28
sex	0.012	4.00	0.011	11.12	0.008	5.78
education	0.059	6.56	0.015	6.47	0.061	10.32
education-square	-0.002	-2.00	-0.001	-15.73	-0.002	-5.23
location	0.053	5.89	0.066	23.77	0.075	7.31
sex*health	0.004	4.00	0.054	58.80	0.006	4.13
sex*occupation	0.046	4.18	0.044	9.56	0.047	4.60
sex*location	0.052	2.00	0.037	20.21	0.003	2.06
sex*health*location	0.050	2.08	0.071	3.26	0.023	3.92
sex*health*occupation	0.020	5.00	0.029	5.22	0.034	11.56
health*occupation	-	-	0.028	10.08	0.022	14.87
health*location	-	-	0.041	14.77	0.030	5.16
_cons	3.393	12.80	4.801	44.53	4.808	36.84
Lambda	0.351	4.56	0.134	6.03	0.143	5.73

A simple scenario is made to compare wages between these three groups of estimation. By taking the youngest age of individuals, 15 years old while holding other variables constant, the lowest wage is Rp. 73,439, received by young women, unhealthy and uneducated, engaged in informal sector and resided in the rural areas in 1993. Later, by correcting the

average years of school is 6.17 years and the average age of individuals is 35.8 years old, then the simulation for wage in 1993 is as follows:

**Table 5.2. Estimated monthly wage of 1993 population (Rp.)**

Characteristics		Formal sector		Informal sector	
		Healthy	Not healthy	Healthy	Not healthy
Male	Urban	271,609	248,846	247,659	231,406
	Rural	232,377	223,901	211,886	208,209
Female	Urban	226,155	223,043	220,098	217,069
	Rural	214,419	211,469	208,677	205,805

The table shows how occupation status, health status, residential location and gender determine the amount of wage received by individuals in 1993. The highest wage is received by males, healthy, residing in the urban areas and worked at formal sector. Meanwhile the lowest wage is experienced by females, unhealthy, engaged in the informal sector and not in a good health status.

In 2000, the lowest wage is Rp. 255.046, received by the youngest population, age 22 years old, females, unhealthy, uneducated, rural settlers and involved in informal sector. Comparing it to the lowest wage received in 1993, while holding other factors constant, it can be said that a 7 years discrepancy in age contributes to the escalation of wage by Rp. 150 ribu rupiah.

Later, the simulation of wage below is evaluated at the average age, 42.2 years old and average years of schooling is 8.5 years, and holding other variables constant.

**Table 5.3. Estimated monthly wage of 2000 population (Rp.)**

Characteristics		Formal sector		Informal sector	
		Healthy	Not healthy	Healthy	Not healthy
Male	Urban	588,575	511,307	487,182	450,268
	Rural	480,908	439,205	398,063	386,773
Female	Urban	489,692	445,607	452,273	418,766
	Rural	423,835	404,256	387,707	379,906

Males, healthy, lived in the urban areas, and engaged in the formal sector is experienced the highest wage. Comparing to the same group of people who also received the highest wage in 1993, it is seen that the amount of the wage received is more than doubled in 2000. Later, workers group who received the lowest wage is females, unhealthy, rural settlers and in the

informal sector. Again, if this group is compared to the same group in 1993, the disparity is not that high. In short, it can say that during 1993-2000 there is an improvement in the way labour market values workers with good health and have capabilities to enter and work in the formal sectors.

Within group of migrant workers, it is estimated that the lowest wage is Rp. 227,750, slightly lower compared to that of 2000. The estimated wage simulations for migrant workers is corrected by average age and years of schooling.

**Table 5.4. Estimated monthly wage of 2000 migrant workers (Rp.)**

Characteristics		Formal sector		Informal sector	
		Healthy	Not healthy	Healthy	Not healthy
Male	Urban	684,728	567,505	546,100	491,338
	Rural	562,255	503,370	448,423	435,811
Female	Urban	568,231	516,936	510,648	479,605
	Rural	486,995	462,951	437,644	429,519

Males migrant workers, healthy, lived in the urban areas and involved in the formal sector received the highest wage, Rp. 684,728, a Rp. 100 thousand higher than population wage and is threefold higher than the highest wage in 1993. In other words, migrant workers received a higher relative wage compared to non-migrants in 2000, after holding other variables constant. The amount of wage received by migrant workers is much higher compared to the origin wage received in 1993. In short, the findings have shown that the benefit of migration explicitly by declaring the huge differences in the wage received prior to and after migration taken place. Therefore, it can also be translating as an improvement in the level of welfare of migrants. Migrants are better off after migration.

Further, it is worthwhile to investigate the impact of migration on the poverty reduction. As it is mentioned earlier that migration can be used as a coping strategy to poverty alleviation, the welfare of migrants prior to and after migration could be used as an approach to measure their standard of living, either getting better or worse. With that regards, the wage received during specific time period, in this case, between 1993 and 2000 could be used as an approach to answer the research question.

During 1993-2000, there was a huge improvement in the wage received by migrants, in that the highest wage gap is Rp. 413,119 thousand while the lowest wage received is Rp. 154,311. On another matter, poverty line in 1993 was Rp. 27,905 and in 2000, was Rp. 91,632. There is an increased at Rp. 62,180 during that period. It is seen here that the increment of wage is higher than the increment of poverty line. In addition to that, it can also argue that migrant workers have financial capabilities to support the living for an addition of new migrants. Thus, it is not surprising to find out that the flow of migration will be continued in the future since there is certainty that former migrants could effort the life of new migrants. In other words, it can be seen as the role of network in migration. Furthermore, as welfare of migrants inclined, it can also open another opportunity for migrants to improve their human capital through education and health.

To conclude, the findings have shown that there is a significant improvement in the level of welfare of migrants after migration taken place. Their standard of living is better than prior to migration even they can effort a living for new member of migration.

However, it is important to note here that, this study solely focuses on the people who migrated during 1993-2000, regardless their economic condition. Thus, it is unsure whether the poor who are migrated. Thus, there is need for new researches focus precisely to the poor population and investigate the impact of migration towards their life.

### **Conclusion**

The core findings of this study reveal that migrants gained benefit from migration by earning higher wage in destination. After migrating, migrants have wider capabilities to effort a better standard of living is improving and put them far above poverty line. The higher wage received after migration provides migrants many opportunities. Being better off financially allows migrants to improve their productivity by investing their human capital through completing higher education and skills. Further, an improvement in the level of welfare also allows them to have power to support new migrants which potentially could sustain the flow of migration in the future.

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