

The Relationship between Rural-Urban Migration, Household Income and Unemployment: Malaysia Case Study

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Abstract: *Internal migration is a key mechanism for the adjustment of regional economies, particularly when other devices proven fail. However, these processes have a highly factors of that specification complex economic, social, demographics, environmental, etc. Importance of internal migration, the 2009 World Development Report highlights that successfully economies are those that have the high density, mobility and integration. Migration is common element in most societies of population growth, so the scale of movements in developing countries is that the urban population may have the undesirable effects on poverty and development. Migration has come to consider rural-urban migration as a "major factor that contributed to these phenomenon in any urban and the excess of labor force directly exacerbate the unemployment problems in the city is serious". Beyond the cross-border migration, internal migration, especially from rural to urban areas has been a key driver in the economic development of Malaysia. In 1970, more than 70% of the population lived in rural areas. By 2008, this number was reduced by half to around 35%. During the same period, the gap of urban and rural income has been reduced from a ratio of 1:2.1 to 1:1.8. Thus, the larger urbanization has contributed to the increasing average revenue and to improve quality of life. So, this paper provides a cursory of the literature examining to investigate the relationship between rural and urban migration, household income and unemployment in Malaysia by using data from 1980 to 2011. By using time series data, it has been found that migration is positively influenced by level of household income and negatively influenced by unemployment rate for rural and urban migration in Malaysia. Johansen co-integration, vector error correction model and granger causality test are employed to analyze the data.*

Keywords: *Internal migration, mobility, population, household income, unemployment.*

1. INTRODUCTION

Internal migration can be categorized into 2 levels, intrastate and interstate (Department of Statistics, 2009). Migration trend not only involves the rural areas to urban, but also involves migration from between urban, between rural and urban to rural (Usman & Tarmiji, 2010). According to Purnomo (2009), the population moved from rural to urban areas will indirectly result in the process of development and urbanization. Migration process occurring is considered to be a natural process that will deliver to the destination of the workforce. Malaysian population movement flows have caused the development of major cities with a rapidly growing population. On the whole, the total urban population in Malaysia has increased from 28.4% or 2.96 million in 1970 to 61.8% (13.72 million) in 2000 (Department of Statistics, 2001).

Migration process from the rural to urban especially to cities or towns due to the attraction of employment, education, social services and others push factors from rural area. Migration between rural usually from villages to estate or Regional Development Program such as FELDA, FELCRA and RISDA (Usman & Tarmiji, 2010; Rodzli & Seng, 2012). Migration can be considered as an alternative to get out from poverty trap and it is one of the factors that influence population growth in that area (Yunita Sari, 2009). According to UNFPA (1999), the world is experiencing continuous urbanization when people migrate to cities and towns to find a good job, educational opportunities and a better standard of living. So, Figure 1 below shows the trend of urban and rural migration in Malaysia.

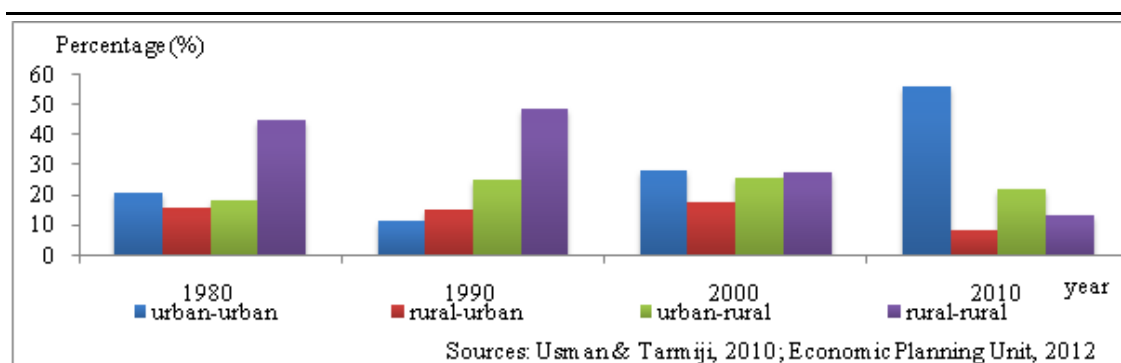


Figure 1. Rural-Urban Migration Trends Year 1980, 1990, 2000 And 2010

From figure 1, the numbers of migration between urban, rural-urban, urban-rural and between rural has a fluctuation because of the pull and push factors. Number of migration between urban showed the most significant increase because the urban area have better infrastructure than rural areas especially in the 20th century (Usman & Tarmiji, 2010; Department of Statistics, 2012). Internal migration can actually increase the level of income, adding work experience and increase the level of life satisfaction (Chamratrithirong, 2007; Chowdury et al, 2012). However, Todaro (1980) said that the rapid migration is not a beneficial process for the solution to the problem of labor demand in urban areas. This is because of rapid population growth, particularly in urban areas is seen as a motivating factor to the migration of people from rural areas to move and this movement occurs in a short period of time (Chamratrithirong, 2007). Migration exacerbates the structural imbalances occur urban and rural areas in terms of supply and also there is an imbalance in the growth of urban job seekers (Todaro, 1980).

Around 4.8% unemployment rate for urban areas was recorded in 1984 and 5.2% for rural areas. However, the unemployment rate is actually suffering from the condition that the fluctuation of the two areas where in 1992, the unemployment rate for urban areas was 3.2% and 4.3% recorded for rural areas. The unemployment rate continues to fall until it reaches 2.1% for urban areas and 2.9% in rural areas in 1997. But the unemployment rate for both these areas increased again in 2002 to be 3.3% (urban areas) and 3.8% (rural areas). In 2007, the unemployment rate for both these areas fell slightly to be 3.1% for urban areas and 3.5% in rural areas. For rural areas, the percentage of unemployment in 2012 is unchanged while for urban areas, the percentage of unemployment rate fell to 2.9% (Economic Planning Unit, 2012; Department of Statistics, 2013)

For total average monthly household income for urban and rural areas, although total revenue for the two regions is seen to increase from year to year but the household income gap is very significant. For the mean monthly income for urban Household is around RM 1,673 in 1984 while the mean monthly income for rural Household is RM 842. Similarly the mean monthly household income in 1984, the gap of household income for rural-urban areas also significant until year 2012 (Economic Planning Unit, 2012; Department of Statistics, 2013). Table 1 shows the monthly mean of gross Household income and Unemployment Rate for rural-urban areas.

Table 1. Mean Monthly Gross Household Income and Unemployment Rate

Variables	Year					
	1984	1992	1997	2002	2007	2012
Mean Monthly Gross Household Income						
Rural (RM)	842	1,009	1,704	1,729	2,283	3,080
Urban (RM)	1,673	2,050	3,357	3,652	4,356	5,742
Unemployment						
Urban (%)	4.8	3.2	2.1	3.3	3.1	2.9
Rural (%)	5.2	4.3	2.9	3.8	3.5	3.5

Source: Economic Planning Unit, 2012; Department of Statistics, 2013

In Malaysia, the government has taken steps to control the rate of internal migration and also to develop economic growth in certain areas by establishing the New Economic Corridor in 2007 (Datuk Faizah Mohd Tahir; 2008). There are five agencies have been given the task of developing the New Economic Corridor as follows:

- East Coast Economic Region (ECER)
- Iskandar Development Region (IDR)
- Northern Corridor Economic Region (NCER)
- Sabah Development Corridor (SDC)
- Sarawak Corridor Of Renewable Energy (SCORE)

The establishment and implementation of the five agencies this may be a motivating factor which resulted in the reduction of internal migration rate out of all the states in Malaysia. Various measures have been taken by the government aims to develop and improve the economy, particularly in rural areas. Opening the land schemes such as FELDA, FELCRA, RISDA and other development projects in rural areas also attract people to migrate. The purpose of the scheme is to reduce poverty and unemployment (Nik Hashim, 1992). However, the problem now is the lack of the second generation who are keen to further develop this sector because they prefer to work in the manufacturing sectors. So, this paper is to investigate the relationship between rural and urban migration, household income and unemployment in Malaysia.

2. LITERATURE REVIEW

Internal migration is an important phenomenon that will happen to a country to achieve development (Mohd Fadzil & Isaac, 2007) and its considered as a system that cycles seen interconnected with the elements involved and have their own goals (Mabogunje, 2002). With refer to the United Nations (UN), internal migration is a permanent change of geographical units to other geographical units in the same country (Crowder & Hall, 2007). According to Usman & Tarmiji (2010), migration is a demographic process that involves the transfer of population from one area to another area. It is a process of population movement that is sensitive to socio-economic development of that area.

Overseas Development Institute, ODI (2006) stated that internal migration consists of poor people who want to improve their standard of living. Many sectors have benefited from internal migration, including agriculture, manufacturing, construction, beaches and coastal economies, as well as services (ODI, 2006; Lee, 2012). Internal migration can be split into two categories: macro and micro basis. Migration focus on the macro level is taking the direction of migration occurring aggregates (Lee, 2012) while for micro level, the main focus is on decision-making by individuals to migrate (Zanker & Jesicca, 2008).

According to Ping & Shaohua (2005), internal migration in China is characterized by two important features: the first one, most migrants leave their farms to urban areas or for non-agricultural activities. Second, the flow of labor was basically directed from the interior to the coast, or from the city center and western regions to the east. These two features are seen overlapping and intertwined with macro socio-economic structure. While Castles & Miller (2003) makes an assumption that people who move from low-income areas to high-income areas and from high density to a less populated area. This gives a picture of the migratory move toward equilibrium specific economics.

In China, the government has implemented a more positive approach towards migration from rural to urban areas, and subsequently adopted a number of policies supporting rural migrants to urban areas (Ping & Shaohua, 2005). Internal mobility or migration only occurs in the early stages (at a young age), while the high mobility rate for Latin American countries and other developed countries, migration occurs at the end of the age when the population was more (Bell & Muhidin, 2009). In Malaysia, Yoshimi Chitose (2003) found that the New Economic Policy was introduced in Malaysia is a significant and positive impact on the ethnic Malay to non-Malay ethnic otherwise migrate no impact on migration.

But lately, Katiman (2006) found that the Klang Valley is still growing with a fast pace and rapid growth occurs in zones built. Out-migration in the Klang Valley metropolitan is more than in-migrant who enter to Klang valley. Out-migration occurs because the core area is crowded and attractions from the outskirts. Migration to the edge of metropolitan areas also resulted also occurs the new city growth rapidly in Klang (Katiman, Fuad & Aishah, 2010). Economic factors seem to influence the internal migration and according to Filiztekin & Gokhan (2008), the internal

migration occurs because of poverty, unemployment and income. More attractive employment opportunities in the area of destination has attracted people to emigrate but for the people in Romania, internal migration less than migration out of the country (Pirciog et al, 2009).

Saptanto et al (2011) stated that migration is one of the phenomena related to social welfare in Indonesia. Community tends to migrate to the destination area for the purpose of increasing their income and to enjoy a better of life. Social networks that exist in the destination area also managed to attract the population to migrate to the destination (Filiztekin & Gokhan, 2008). Ping & Shaohua (2005) have emphasized about the relationship between migration and development in alleviating poverty and suggests that internal labor migration can have a positive impact on development and poverty reduction in the area of origin. According to Roslee & Dzulkiflee (2008), the young people in the interior of Sabah migrate because of the pull and push factor that exists between poverty, basic amenities and employment factors.

3. METHODOLOGY

This studies use the annual time series data for rural and urban areas starting from 1980 to 2011. The data used is secondary and it derived from the Department of Statistics and Economic Planning Unit (EPU). Based on the objectives, the equation (3.1) below has been developed using the appropriate variables.

$$M_{it} = \alpha + \beta_1 HHI_{it} + \beta_2 UN_{it} + \varepsilon \quad (3.1)$$

where M refer to in migration, i is the urban/rural area, t is the year, THI is household income, UN is unemployment rate, and ε is an error term. The unit root tests are run first before we run the cointegration and granger causality test. So the purpose of this unit root test is to look the stationary of variables at level and first difference (Asteriou & Hall, 2007; Seddighi et al, 2000). Hypothesis for the unit root tests are:

$$H_0 : \delta = 0 \text{ (have a unit root test / not stationary)}$$

$$H_1 : \delta \neq 0 \text{ (no unit root test / stationary)}$$

To test the unit root, Dickey Fuller test (ADF) Act 1979 will be used for this method. ADF unit root test method is as follows.

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^a \phi_i Y_{t-1} + \sum_{j=1}^b \theta_j \Delta Y_{t-1} + \varepsilon_t \quad (3.2)$$

Without constant and trend:

$$\Delta Y_t = \delta Y_{t-1} + \mu_t \quad (3.3)$$

With constant:

$$\Delta Y_t = \alpha + \delta Y_{t-1} + \mu_t \quad (3.4)$$

Constant and trend:

$$\Delta Y_t = \alpha + \beta T + \delta Y_{t-1} + \mu_t \quad (3.5)$$

Where Δ is the first differentiation, ε_t and μ_t is a stationary random error. Based on the hypothesis of the unit root test, if the t-statistic obtained is greater than the critical value, then hypothesis H_0 will not be rejected (meaning the variable is not stationary and have a unit root). But if the t-statistic is less than the critical value, then there is no unit root and the variables is stationary (H_0 hypothesis is rejected).

After performing the unit root test, cointegration tests are made in order to see a direct relationship between all the variables involved. This study aims to look at the long-term relationship between the variables. In the long-term cointegration test, there are two main models developed by Engle and Granger (1987), and also developed by Johansen (1988) and Johansen and Juselius (1990). Cointegration test for this hypothesis is as follows:

$H_0 : \delta=0$ (not stationary for $\widehat{\mu}_t$ or not cointegration if $t_\delta > \tau$)

$H_1: \delta < 0$ (stationary for $\widehat{\mu}_t$ or cointegration if $t_\delta < \tau$)

Whereas $\widehat{\mu}_t$ is the error and τ is the critical value. If the value of the t statistic is less than the critical t, then H_0 is received (the variables are not cointegrated). And if the value of t statistic is greater than the critical t, then H_0 is rejected (Asteriou & Hall, 2007; Seddighi et al, 2000). In this study, the cointegration method introduced by Johansen will be used. Linear regression equation for this cointegration is:

$$Y_t = \beta_1 + \beta_2 X_t + \mu_t \tag{3.6}$$

And the residual equation is:

$$\widehat{\mu}_t = Y_t - \widehat{\beta}_1 - \widehat{\beta}_2 X_t \tag{3.7}$$

While test Error Correction Model (ECM) was conducted in order to see the effect of migration, household income and unemployment in the short term. Set of equation for the ECM test is:

$$\Delta Y_t = a_0 + b_1 \Delta X_t - \pi \widehat{\mu}_{t-1} + Y_t \tag{3.8}$$

Where b_1 is the multiplier effect of the variables in the short term and they have immediate impact on the dependent variable of Y_t (when X_t is change, then Y_t will also change). Causality tests in this study to see the granger cause relationship between the variables involved. Granger (1969) introduced this causality test to see the reaction between two variables. Sims has further expanded this model to be a model of alternative causes in 1972 (Asteriou & Hall, 2007; Seddighi et al, 2000). Hypothesis for the granger cause model is as follows:

$$H_0 : \sum_{i=1}^n \beta_i = 0 \text{ or } X_t \text{ does not granger cause } Y_t$$

$$H_1 : \sum_{i=1}^n \beta_i \neq 0 \text{ or } X_t \text{ granger cause } Y_t$$

If the variable X is granger cause of Y and Y is also the cause of X, its means that the past of X help in anticipating the future Y. Similarly, the last value of Y also assists in the expected future value of X. Here is the regression formula for two way causality tests (involving variables X and Y):

$$Y_t = \sum_{i=1}^p \sigma_i Y_{t-1} + \sum_{i=1}^q \beta_j X_{t-j} + \mu_{1t} \tag{3.9}$$

$$X_t = \sum_{i=1}^p \gamma_i Y_{t-1} + \sum_{i=1}^q \delta_j X_{t-j} + \mu_{2t} \tag{3.10}$$

And the formula for calculate the F test (F-statistic) is as follows:

$$F = \frac{[RSS_R - RSS_u]/m}{RSS_u/(n-k)} \tag{3.11}$$

Whereas n is the number of distribution and k is the number of variables. To determine the critical value of F, the formula $F_{m,n-k}$ (where the value of k is equal to $m + n + 1$) will be used and it should refer to the table of distribution F. if the F-statistic is greater than the F-critical, then H_0 will be rejected (it can be concluded that X, is a cause of Y and vice versa).

4. FINDINGS

The result about the relationship between migration, household income and unemployment for rural urban are discussed. The unit root test is to investigate the stationary property based on Augmented Dickey-Fuller (ADF). Table 2 below shows the unit root test of rural-urban migration.

Table 2. Unit Root Test

Variable	URBAN				RURAL			
	Intercept		Intercept + Trend		Intercept		Intercept + Trend	
	Level	First difference	Level	First difference	Level	First difference	Level	First difference
M	- 1.0092	-6.8436**	- 2.7356	-6.7206**	- 1.0092	- 11.8389**	- 2.7356	- 11.2044**
UN	- 1.4017	-3.6353**	- 1.9192	-3.6284**	6.9502	-6.6939**	- 1.4899	-7.1921**
BHI	- 0.7362	-3.1370**	- 0.7360	-7.1921**	- 1.3781	-3.6443**	- 1.9584	-3.6396**

Note: ***, ** and * denote statistical significance level at 1%, 5% and 10%, respectively.

Table 2 above shows the results of unit root test for rural-urban areas. All rural-urban variables (migration, unemployment and household income) are significance at 10% and 5% significance level. Table 3 below shows the length criteria selection with use the Alkaike Information Criterion for rural-urban.

Table 3. Length Criteria Selection

Lag	Alkaike Information Criterion	
	URBAN	RURAL
0	26.2310	25.5193
1	21.6812	20.8682
2	21.5825*	20.2485*

Table 3 above shows the length criteria selection for rural-urban area using Alkaike Information Criterion. While table 4 below shows the cointegration test for rural-urban areas in Malaysia.

Table 4. Cointegration test

Hypothesized no. of CE(s)	URBAN				RURAL			
	Max-Eigen statistic	0.05 critical value	Trace statistic	0.05 critical value	Max-Eigen statistic	0.05 critical value	Trace statistic	0.05 critical value
r=0*	31.8221	21.1316	43.3808	29.7971	26.1986	21.1316	34.6784	29.7971
r≤1	11.5024	14.2646	11.5587	15.4947	7.2412	14.2646	8.4808	15.4947
r≤2	0.0563	3.8415	0.0563	3.8415	1.2395	3.8415	12.395	3.8415

Note: ***, ** and * denote statistical significance level at 1%, 5% and 10%, respectively.

Table 4 above shows the cointegration result for the relationship between migration with unemployment and household income. From the result above, at least one variable cointegrated with migration in the long run. To saw the short run relationship between variable, table 5 below shows the result for Vector Error Correction Model (VECM).

Table 5. Vector Error Correction Model (VECM)

Error Correction	URBAN			RURAL		
	ΔM	ΔHHI	ΔUN	ΔM	ΔHHI	ΔUN
ECM(-1)	-0.4196	-0.1527**	-0.4373**	-0.0259	-0.01284	-0.5949**
ΔM(-1)	-	-8.2558	0.0974**	-	-0.4885	- 0.04172**
ΔHHI(-1)	-0.0016	-	0.0010	0.0309**	-	-0.0001
ΔUN(-1)	-1.2157	-61.3120	-	1.2583	-40.2783	-
Constant	3.7472**	98.2527**	-0.5291**	-4.2695**	99.4113**	-0.0262

Note: ***, ** and * denote statistical significance level at 1%, 5% and 10%, respectively.

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Table 5 above shows the short run vector error correction model (VECM). Based on the short run analysis for rural-urban migration above, at least one variable has a short run relationship at 5% significant level. While table 6 below shows the granger causality for all rural-urban variables.

Table 6. *Granger Causality Test*

URBAN		RURAL	
Variables	F-Stat	Variables	F-Stat
HHI does not granger cause M M does not granger cause HHI	1.3523 4.1814**	HHI does not granger cause M M does not granger cause HHI	8.8568** 0.6517
UN does not granger cause M M does not granger cause UN	2.1662 3.6336**	UN does not granger cause M M does not granger cause UN	2.3418 4.0162**
UN does not granger cause HHI HHI does not granger cause UN	1.5642 1.6207	UN does not granger cause HHI HHI does not granger cause UN	0.6172 3.6329**

Note: ***, ** and * denote statistical significance level at 1%, 5% and 10%, respectively.

Table 6 represents the granger causality for all rural-urban variables. For rural areas, the household income is granger cause to migration and unemployment while only migration is granger cause to unemployment. For urban areas, only migration is granger cause to unemployment and household income.

5. CONCLUSION

The main objective of this study was to examine the relationship between rural and urban migration, household income and unemployment in Malaysia. For the unit root test result, all variables are significant at 5% and 10% significant level based on ADF test. Cointegration test result showed that at least one variable have a long run relationship with migration for all rural-urban combination variables (migration, unemployment, household income). Vector Error Correction Model (VECM) showed that at least one variable has a relationship in short run. And for granger causality test, migration is granger cause to household income and unemployment for urban area. For rural area, the household income and migration is granger cause to unemployment while only household income is granger cause to migration.

Migration is considered as one of the drivers of strategy development and growth and is an important route out of poverty for the population (Chowdury et al, 2012). On the other hand, migration is happening today is seen as a major factor contributing to the occurrence of the phenomenon of urban surplus labor and, consequently, the problem of unemployment in urban areas is becoming increasingly serious due to the economic and structural imbalances between rural and urban areas (Todaro, 1980). Labor from outside the area with high experience is also seen to increase human capital and socio-economic development of sending areas (Ping & Shouhua, 2005). They are actually more likely to increase labor supply growth in urban areas but will there be a shortage of skilled and experienced labor in rural areas. In view of the demand side, employment in the most difficult to obtain and expensive cost of living in the area compared to rural employment opportunities (Todaro, 1980)

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