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The Impacts of Temporary Emigration of Lower-Skilled Females on Sending Households in Indonesia

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Abstract

The temporary migration of young women from developing countries to work as maids and other unskilled occupations in richer countries is a growing phenomenon but the effect on income levels of the emigrant and the migrant-sending households is unclear. We combine a survey of Indonesian maids and factory workers in Malaysia with data from three rounds of the Indonesian Family Life Survey (IFLS) to estimate that these young women may gain an additional US$80 to US$130 per month compared to earnings had they stayed in Indonesia. The main use of remittances is to accumulate fixed assets in Indonesia.

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I. Introduction

The temporary emigration of young women from developing countries to work as caregivers, maids and in other unskilled occupations in richer countries is a growing phenomenon. Some of the driving forces are as for other migration flows, such as growing international wage gaps, rising demand for services, divergent trends in youth and elderly populations in developed and developing countries, and catch up from the previously "everything but labour" nature of globalisation in the post-World War II era (Pritchett, 2006). However this international movement of young women also reflects deliberate policies of host countries wanting to raise labour force participation of their own, more educated, women, by importing domestic services. For example, Malaysia has a scheme which allows young women from especially Indonesia and more rarely, the Philippines, to work as domestic workers or as factory workers.

A feature of many of these migration schemes, including the Malaysian one, is that they only allow temporary migration. For example, immigrants under the Malaysian scheme are only given a one year work permit, although they may renew this annually if their services are still needed. Proponents of such temporary migration programs argue that this feature may overcome perceived problems with settlement migration, such as permanent loss of labour from the source countries, social stress, fiscal costs and irreversibility in the host countries (Abella, 2006). However this expansion of guest-worker schemes is controversial, in both academic and policy circles, since previous programs failed to meet many of their objectives (Ruhs, 2006).What is largely absent from these debates however, is empirical evidence on the impacts that temporary migration programs have on either the host country or the source country.

In this article we provide first evidence on the impact of temporary migration on the emigrants themselves and on their sending households in Indonesia. We examine the income gains for emigrants, the determinants of their remittances, and the impact of these remittances on sending households' expenditure and assets.

Such evidence is needed because the effect of emigration on income levels of migrant-sending households is unclear. It depends on whether remittances are large enough to offset possible reductions in local earnings and other contributions to household production. The evidential difficulties are especially apparent when studying lower-skilled migrants because of incomplete and unreliable data from the high proportion of these who are undocumented or irregular migrants (Asis & Piper, 2008). Therefore to understand the impacts of emigration to Malaysia (and subsequent remittances) on the migrants and their families in Indonesia, we use a specially designed survey of Indonesian female immigrants in Malaysia that was conducted by the first author in 2008.

We combine information from this survey with data from the Indonesia Family Life Survey (IFLS) to estimate the income gains for these migrant workers. The results suggest that lower-skilled female migrants may gain US$80 to US$130 per month compared to their existing or potential earning had they stayed in Indonesia We also examine the determinants of remittances and planned future use of earnings by these temporary migrants to understand whether transitory income may generate a permanent effect on sending households. The decision to remit depends on duration and earnings in Malaysia more than on household characteristics in Indonesia. The use to which remittances are put depend on migrants' characteristics; unmarried females are more likely to remit to purchase fixed assets while married migrants remit for their children's education.

We also use the IFLS to understand the impact of emigration on household expenditure patterns. Analysis of these panel data suggests that emigration does not

significantly increase household daily expenditure on food, non-food or education expenses but does have a significant impact on household fixed assets. This evidence may contradict popular belief that income from lower-skilled temporary migrants is usually used only for conspicuous consumption rather than for long term investment (Pessar, 2005).

These findings should be of broad interest, given the lack of literature on the impact of specifically lower-skilled female migration on sending households, in either Indonesia or anywhere. These findings are also relevant for governments of Indonesia and Malaysia since there are at least 1.9 million lower-skilled Indonesian workers in Malaysia and nearly half of them are females (Ministry of Finance, 2007). Moreover for the last few years, Indonesian female migrants have been complaining about low wages and poor working conditions in Malaysia (Chin, 2005). Nevertheless, there has not been any systematic study of their economic impacts on either the host or sending country.

The structure of this paper is as follows: The next section provides a brief review of relevant literature. Following that, we describe the survey conducted by the first author and the secondary data set. The main results for impacts on the Indonesian emigrants and the effect of their migration and remittances on their own households in Indonesia are reported in Section IV. The final section concludes.

II. Previous Literature

One of the most direct impacts of migration is remittances. According to the World Bank, remittances that flow through official channels to developing countries reached a recorded high of $328 billion in 2008 (Ratha, Mohapatra, & Xu, 2008). Remittances to Indonesia are worth $6 billion in 2007 (Ratha & Yu, 2008). Remittances have been long viewed as a stable source of external finance and it is assumed that they help to alleviate poverty and assist in

micro and macro development in the sending countries (Acosta, Calderón, Fajnzylber, & Lopez, 2008; Adams & Page, 2005; De Haas, 2006). [1]

However, previous studies have not come to consistent conclusions on the micro-level impacts of emigration and remittances. While some studies find remittances to positively impact not only sending households but also non-migrant households (Yang & Martinez, 2006), others find increased income inequality and reduced non-migrant labour force participation (Barham & Boucher, 1998; Rodriguez & Tiongson, 2001; Taylor, 1999). The inconsistent estimates of remittance impacts may be due to whether they are treated as endogenous or exogenous (that is whether or not self selection into migration is considered), and the income prior to emigration compared to the remittances (McKenzie, Gibson, & Stillman, 2007). It also depends on how remittances are used, the size of the out-migrant population and the sending households initial income distribution (Osili, 2007). Finally, the individual characteristics of emigrants may be important for determining remittance behaviour. In summary, existing studies show that the impact of remittances and migration may differ according to migrants' characteristics, remittance behaviour and remittance usage and also differ from country to country depending on political and economic policies in sending and receiving countries (Catrinescu, Leon-Ledesma, Piracha, & Quillin, 2009).

Therefore, it is likely that the impact of remittances by lower-skilled female temporary migrants will be different from the impact of remittances by migrants in general. Some researchers believe that temporary migrants are more likely to remit compared to permanent migrants as they are more likely to have children or a spouse in their home country (Dustmann & Mestres, 2009) and they are less likely to settle in the host country

[1] For example in Sub-Saharan Africa countries, Gupta, Pattillo, & Wagh (2009) find remittances have a direct impact on poverty and financial development, while Adams & Page (2005) estimate that a 10 percent increase in remittances will lead to a 3.5 percent decline in poverty.

(Adams, 2009). On the other hand, since these migrants are less educated they may remit less because they earn less compared to more educated migrants (Bollard, McKenzie, Morten, & Rapoport, 2009). Since females often earn less than males, remittance may be even less likely in the current case, although there is limited literature on whether female migrants have different purposes for remitting and remit more or less than men (Guzmán, Morrison, & Sjöblom, 2008; Kanaiaupuni, 2000).

Finally, long run impacts depend on the sustainability and usage of remittances. It is a popular belief that remittances and earnings from lower-skilled temporary migrants are usually spent on conspicuous consumption and non-productive investment (Pessar, 2005), but some studies show that earnings from these migrants are also invested for more productive income generating activities (De Haas, 2005; Eki, 2002; Mendola, 2008). Some studies also consider earnings from lower-skilled temporary migrants as a life support strategy rather than a life-changing strategy because the remittances provide immediate support to sending households for repaying debts and are used for daily consumption rather than long term investment (Jones & Pardthaisong, 1999). Given these conflicting claims it is important to empirically determine how remittances of lower-skilled female migrants are used.

III. Data

This study is based on a survey conducted by the authors (in early 2008 in Malaysia) and supplemented with data from the Indonesia Family Life Survey (IFLS) conducted by RAND Corporation. Details of these two datasets are provided here.

A. Author's Survey

The survey was conducted by the first author, who interviewed lower-skilled female Indonesian migrants working in the states of Selangor and Federal Territory Kuala Lumpur, Malaysia. These two selected states hold one-quarter of Malaysia's labour force and have the

most female migrants in Malaysia. About 76 percent of all foreign workers in Malaysia are from Indonesia and half of these are women working as domestic maids or factory workers (Ministry of Finance, 2007).

The survey was completed by 194 respondents who answered questions about their family information in Indonesia, their work history, remittance pattern and planned future use of their earnings. About 87 percent of respondents worked as domestics and 13 percent as factory workers. This sample balance reflects the fact that female migrant workers who work in factories are difficult to interview since they usually stay in workers quarters that are not accessible without employers' permission and some employers were reluctant to allow their workers to participate in the survey. However, despite the small size of the realised sample, it is the largest survey of lower-skilled female Indonesian migrants ever conducted.

Table 1 reports summary statistics for respondents' individual and household characteristics. The average age of respondents is 30 years old.[2] Two-fifth of the respondents are married, with the largest group being never married children of the household head in Indonesia. Another 40 percent are household heads themselves or spouses of the household head. About half of these female migrant workers obtained only primary education and just one percent have tertiary education. On average, they had previously worked in Indonesia for 2.2 years and have been working in Malaysia for 2.8 years. However, the distribution for working years is skewed to the right, with the median migrant having never previously worked in Indonesia and having only two years work experience in Malaysia.

In terms of their family background, the average household size for the respondents' family in Indonesia is 4.8 persons (including the migrant). On average, one person in their family is still in school, and the modal education level in the household is for at least one

[2] The official age range for migrant maids in Malaysia is from 25 to 45 years old but some may falsify their age or are undocumented or irregular migrants. For factory workers they are only allowed to work for a maximum of five years in Malaysia.

member to have attained upper secondary education. Finally, only half of these migrants' households owned farm land.

B. Indonesia Family Life Survey (IFLS)

We supplement the information from the survey of migrants with data from the latest three waves of the Indonesia Family Life Survey (1997, 2000 and 2007). The IFLS is a longitudinal survey which covers over 30,000 individuals originally living (in 1993) in 13 of 27 Indonesia's provinces (that held 83 percent of the population). The survey covers a range of household and individual information about migration, work, education etc.[3]

The IFLS is used here for three purposes. First to determine how representative is the author's survey; second, to provide a counterfactual income for migrants to calculate the income gains from migration; third to estimate the impact of migration on household expenditure and assets.[4]

Table 2 reports the descriptive statistics for households and their heads in the latest wave of the IFLS (2007) to compare with the results from the authors' survey. On average, there are about four persons currently living in each household (not including the emigrant, so similar to the five persons including the migrant in the authors' survey) where three are of labour force age and one is below 15 years old. In terms of internal and international migration, there are approximately four times as many internal migrants, and their prevalence is almost the same whether or not the household has an international migrant.

Four types of household expenditure are considered; food, non-food (such as utilities), education, and other expenditure (durable goods such as electrical appliances and vehicles). These are reported in Table 2 in per capita annual terms except for education expenditure

[3] See Frankenberg & Karoly (1995),; Frankenberg & Thomas, (2000); Strauss et al., (2004); Strauss, Witoelar, Sikoki, & Wattie, (2009).

[4] IFLS is well suited for this task. Since it is a panel survey any unobservable factors correlated with both the decision to participate in emigration and with the outcomes of interest (i.e., self-selection bias) can be eliminated by estimating fixed effects models.

which is per schooling child.[5] Annual total household expenditure averages US$677 per capita, with about one-half devoted to food. On average, households with school children spent about US$184 per school child per year. Households with overseas migrants have lower levels of average expenditure for all categories considered, and also lower levels of assets (mean of US$7000 versus US$8500 for households without migrants).

IV. Results

A. Income Gains for Lower-skilled temporary Female Migrants

We use four types of differences in income to measure the income gains for these lower-skilled female temporary migrants.[6] First, we use the difference between current income earned in Malaysia and the previous highest income earned in Indonesia to determine the income gains compared with staying in Indonesia. Since almost half of these migrants had either not worked before in Indonesia or were unpaid family workers, the income gains calculated this way also reflect participation choices. So as an alternative we also use their self assessed estimate of the income they would have earned had they stayed and worked in Indonesia to measure the income gains from migration.

However, only about 80 percent of respondents reported a potential income so we use a third procedure to generate a counterfactual income using information from IFLS 2007. Specifically we estimate an OLS regression of log income on a set of covariates such as age, education, marital status and work status that are common to both IFLS and the authors' survey. The estimated coefficients from this regression are then applied to the authors' survey

[5] All four types of expenditure are initially recorded in Indonesian Rupiah but are converted to US dollar using mid-rates for the Rupiah for January 2008 issued by the Central Bank of Indonesia.

[6] All the reported income are converted to US dollar based on the average foreign exchange middle rate against rupiah (Indonesia) or ringgit (Malaysia) for January 2008 issued by Central Bank of Indonesia. US$1 = Rupiah9291 and RM1= Rupiah2871.

to generate predicted income in Indonesia for each respondent.[7] This procedure generates an income for all respondents regardless of whether they had previously worked or reported a self-assessed potential income, so as a fourth variant we replace imputed income for all respondents who report zero self-assessed potential income with zero.

In summary, to determine the income gains for lower-skilled female migrants, we generated four types of differences in income as follows:

I. Model 1 based on current income in Malaysia less previous highest earned income in Indonesia.
II. Model 2 based on current income in Malaysia less self-assessed potential income earned in Indonesia.
III. Model 3 based on current income in Malaysia less imputed earned income obtained using IFLS 2007.
IV. Model 4 based on current income in Malaysia less imputed earned income obtained using IFLS 2007 but replacing imputed income for all respondents without positive self assessed potential income earned in Indonesia with zero.

Subsequently, to ensure robustness in determining the income gains for lower-skilled female migrants, we repeat the analyses but restrict to respondents (n= 80) who had previous paid income in Indonesia.

These four types of difference in income are then used as the dependent variable in the following equation.

$$Y_i = \alpha + \beta_i X_i + \epsilon_i$$

where *Yi* denotes difference in income, *Xi* are covariates such as work experience, education level, marital status and type of job, and ϵ_i is an error term. The parameter of interest is α which denotes the income gains from working in Malaysia, controlling for various variables.

Means and medians of the four types of monthly income are reported in Table 3. The top panel refers to all respondents and the bottom panel just to respondents with previous

[7] The IFLS was from late 2007 and the authors' survey from early 2008 so the coefficients for IFLS should be relevant to the data from the authors' survey. Since the regression used log income the procedure proposed by Wooldridge (2003, pp. 208-209) is used to generate predicted incomes.

paid income in Indonesia. The average monthly income earned in Malaysia is about US$130 to US$142 which is at about six times more than the actual previous monthly income earned in Indonesia. The self assessed potential monthly income earned in Indonesia is about US$46 to US$56, although this may be optimistic because the imputed income obtained using IFLS is only about US$27 to US$32. The imputed monthly income is even lower at about US$22 to US$27 when respondents without positive self-assessed income in Indonesia have imputed income replaced by zero.

If attention is restricted to respondents who had previously earned income in Indonesia, the imputed income and self-assessed counterfactual incomes are largely the same, while the average previous income is higher (since zeros are excluded). Moreover, those with previous work experience earn slightly less than the average in Malaysia, so the estimated income gains will be even lower for this sub-sample.

Table 4 reports the calculated monthly income gains for all respondents (full sample) and for respondents with previous paid income in Indonesia (restricted sample) using four types of differences in income (Model 1 to Model 4). Overall, the results show that income gains for lower-skilled temporary female migrants are between US$84 to US129 per month. The introduction of controls for type of job, work experience, education and marital status does not much alter the estimates. The log estimates show the Malaysian earnings to be about 3.6 to 4.7 times higher than earnings had they remained to work in Indonesia. The estimated gains are lower when the sample is limited to migrants with previous paid income in Indonesia, at about US$42 to US$105 per month or 3.2 to 4.6 times more than their home country earnings. In term of types of counterfactual income used, results are similar when based on actual previous income or the income imputed from the IFLS regressions. But since respondents appear to report their self-assessed potential income earned in Indonesia as

higher than the actual income, the estimated income gains are smallest in Model 2 which uses that counterfactual.

In summary, lower-skilled female migrants earn an additional US$80 to US130 per month compared to if they had stayed in Indonesia. Those migrants without any previous paid income in Indonesia have the highest income gains from migration.

B. Determinants of Remittances

One use of the extra earnings from working in Malaysia rather than in Indonesia is to send remittances. In this section we use probit regressions to study some of the determinants of who remits, and for what purposes:

$$Y_i = \alpha + \beta_i X_i + \epsilon_i$$

where Y_i equals one if the survey respondent sent remittances (or remits for a particular purpose) and zero otherwise. Explanatory variables in X_i include not only the respondents' own characteristics but also those of their household in Indonesia. Amongst these are the number of household members of different age groups, and a household wealth index.[8]

According to the descriptive statistics in Table 5, only one-quarter of the migrants have never remitted. One-half of them remit regularly, at varying frequencies from monthly to semi-annually, while the remainder only remit whenever necessary. Slightly more than half of the respondents indicated that the remittances are for household daily expenditures, which is consistent with previous findings (Orozco, Lowell, & Schneider, 2006; Pessar, 2005). The other common purposes for remittances are education expenses (34 percent), repaying debts (13 percent) and housing (10 percent). The frequency of debt repayment may reflect needs of the emigrant rather than their household in Indonesia, since migrations costs are usually paid

[8] Wealth is used instead of income since it is more observable and may be better known by the emigrant (many of whom were not household heads or spouses of the head). The wealth index is the first principal component from the following dummy variables: ownership of a mobile phone, fixed line phone, camera, car, television, video recorder, DVD player, computer, electric oven, fan, washing machine, sewing machine and generator. Filmer and Pritchett (2001) show that such an index gives a good proxy for income or consumption.

by advanced wages from their employer in host country and repayment is via monthly deduction from their current wages. The priority placed on accumulating fixed assets is also apparent from responses to questions about the future uses of repatriated earnings; one-half of the migrants indicated they will invest their earnings in fixed assets like purchasing land, houses or other buildings. Nevertheless, a high proportion of the respondents were uncertain about whether, or when, they would return to live permanently in Indonesia.

The probit analysis of the data on who remits shows that only two variables, the earnings in Malaysia and the duration working there have a significant effect on whether migrants remit or not (Column 1, Table 6). Being more likely to remit if they have stayed longer may reflect the fact that temporary migrants have to repay their migration cost, which typically takes the first four to eight months of their salary.

When the data on who remits are disaggregated according to the purpose of the remittances (daily expenditure, education, debt repayment, and purchase of fixed assets), different characteristics emerge as relevant determinants. Migrants working as maids are more likely to remit daily expenses than are those who work in factories, perhaps because those working as maids come from poorer families who depend on their income for survival. It is the migrants who are married and with school-age children in their household in Indonesia who are more likely to remit for education expenses. Conversely, unmarried, higher earning migrants working as maids and coming from households who own farmland in Indonesia are the most likely to remit for the purpose of investment in fixed assets.

In conclusion, remittances depend first and foremost on the duration of migration and the wages earned in the host country. Only migrants with children are more likely to remit for their children's education but unmarried migrants are more likely to remit for investment.

C. Planned Use of Repatriated Income

In addition to remittances the migrants also plan to repatriate income when they eventually return to Indonesia. Table 7 contains the results of probit models of the determinants of four planned uses of repatriated income: investing in fixed assets; business investment (starting new business or invest in farming); saving; and education expenses. Most of the planned uses are not explained by the available variables (and so reflect idiosyncratic factors), with the exception of contributing to educational expenses. For this planned use of repatriated income, married migrants who earn less in Malaysia and whose family owns farmland in Indonesia are the most likely to invest their earnings in education of their children, perhaps in the expectation that schooling will help them escape from poverty and the hardship of farming. In contrast, the unmarried migrants are more likely to invest their earning in fixed assets.

D. The Impact of Migration on Household Expenditure and Assets from the IFLS

The above results suggest that remittances and repatriated income of unmarried Indonesian females who are temporarily working in Malaysia in lower-skilled jobs are directed towards the accumulation of fixed assets in Indonesia rather than to supporting daily expenditures. In this section, we use three rounds of IFLS data set to see whether this pattern of impacts on expenditure and assets holds more generally. We use IFLS not only because it is almost nationally representative but also because it is a panel survey which can therefore help to overcome the fundamental problem of self-selection bias that would affect the interpretation of cross-sectional results on the impact of emigration.

Consider the following equation often used to estimate the impact of migration:

$$Y_i = \gamma \times Migrant + \beta x_i \ + \varepsilon_i$$

where Y_i is expenditure per capita of remaining household members (or specific components of expenditure) and γ is the parameter of interest, showing how much higher is expenditure when the household has a migrant working overseas, controlling for X_i set of covariates such

as household size and education levels, and ε_i is meant to be a random error. The problem is that since households self select into migration, unobserved attributes of the households like motivation and ability may be correlated with both the migration decision and with the outcomes of interest, violating the conditions for OLS regression to be unbiased:

$$E(Migrant_i \varepsilon_i) \neq 0$$

With panel data this self selection problem can be overcome by using fixed-effect (FE) regression, where the unobservable factors are treated as time invariant components of the error (Cameron & Trivedi, 2009, p. 231) and are removed by adding household fixed effects:

$$Y_{it} = \gamma \times Migrant_{it} + \beta x_{it} + \mu_i + \varepsilon_{it}$$

where the inclusion of the fixed effects, μ_i accounts for all unobservable, time-invariant factors like motivation and ability, allowing the parameter of interest, γ to be estimated without bias. Since panel data are used, the dependent variable becomes time-specific, so it is yearly expenditure per capita (per student in the case of education expenditure) or non-business assets in household *i* in year *t* that is regressed on a dummy for whether the household ever had an international economic emigrant at time *t* and the X_{it} also includes year dummies that capture all time variant information such as changes in price levels and other macro fluctuations. In addition, the control variables also allow for internal migrants, who move to other parts of Indonesia to work, since they may also be sending remittances that affect household expenditures and assets.

The results of the fixed effects models for total expenditure, various expenditure components, and fixed assets for IFLS households are reported in Table 8. It appears that households who had ever had an international emigrant (by the time of the survey) have significantly higher value of assets, but no difference in expenditure totals or components compared with non-migrant households. This is consistent with the results from the author's

survey in Tables 6 and 7 that remittances and repatriated income from the temporary migrants in Malaysia are mainly directed towards asset accumulation rather than meeting current expenditure needs. This pattern is also consistent with existing research which shows that money earned from overseas is usually kept and invested in fixed assets such as land or dwellings or invested in businesses (Eki, 2002). Interestingly, whether the household has ever had a member work as an internal migrant elsewhere in Indonesia has no effect on either expenditures or assets.

In a further analysis the IFLS sample was divided into urban and rural sub-samples, with different patterns apparent in the two areas. Urban households who had ever had international emigrants spend more on food and have higher total assets, by about 30 percent, than other urban households that did not participate in emigration (Table 9). But in rural areas, total expenditure, food expenditure and other expenditure are all lower than for non-migrant rural households, suggesting that the departure of a member to work overseas lowers the consumption of the remaining members. Presumably this is because the loss of labour for household production, household enterprises or the paid labour market exceeds any additional income from remittances.

In summary, the analyses using IFLS data set confirms that international emigration from Indonesia does not have any significant impact on household expenditure of the left behind family. However there is a positive impact on fixed assets, for urban households. This result accords with findings from the author's survey that young Indonesian women working as temporary migrants in Malaysia remit or repatriate income mainly to accumulate fixed assets in Indonesia, and also to support educational expenses if they are married.

V. Discussion and Conclusion

This study used two different data sets to determine the impact of lower-skilled migrant workers and specifically female migrants on sending households. Findings from this study show that income gains for lower-skilled temporary female migrants can be as high as five times their income in Indonesia and this is consistent with general migration theory that stated income difference between sending and receiving countries play an important role to encourage migration. However, what is more crucial from this findings is that neither accumulate years of working nor work experiences play any role to determine the income earned in the host country as the financial gains are the same for all migrants regardless of their backgrounds as these lower-skilled migrants are more likely to be treated like non-experience workers and their income in the host country depends very much on the policies of the host countries.

Secondly, some existing literature stated that temporary migrants are more likely to remit compared to permanent migration and at the same time, the length of migration may reduce the likelihood to remit (Dustmann & Mestres, 2009; McKenzie, 2006). On the contrary, findings from this study show that length of migration will increase the likelihood to remit because temporary migrants usually have to repay their migration in the early years of migration and it is more economical and efficient to remit or repatriate their meagre income when they work longer.

Thirdly, this study found that only half of lower-skilled female migrants ever remit and one third of them remit for household daily expenses although lower-skilled migrants are usually sent out to increase the sending household income and are expected to remit their income for household expenditure (Jones & Pardthaisong, 1999). Nevertheless, further analysis using IFLS data set also confirmed that migrants' household expenditure is no

difference from non-migrant households and furthermore, migrants' household assets are significantly higher than non-migrant households. This may indicate that the purpose of migration for this group of migrants is not only as "insurance" for the sending household but more for the purpose of increasing household assets. However this is only true for migrants' household in urban areas and may not be true for migrants' household in rural areas. Furthermore, migrants' household in rural areas also may not be able to increase their household assets due to lack of investment opportunities in rural areas. Therefore, only migrants' households from urban areas are better off from migration compared to migrants' households from urban areas.

At the same time, this study also found that lower-skilled temporary female migrants are very idiosyncratic on how they are going to invest their hard earned income when they return home which may indicate that their suffering and hard work in host countries may not be worthy after all as they may have to return to work overseas once their earnings are used up. As such it is utmost important for the sending country government to provide and create opportunities that maximise migrants earnings to generate a long term sustainable income especially in rural areas (Adi, 1996; De Haas, 2005).

In summary, economic impact of lower-skilled temporary female migrants on their households and themselves are very different from other types of migrants. Sending countries like Indonesia are likely to benefit from sending lower-skilled migrants overseas if they create sufficient opportunities and knowledge to empower their emigrants to invest their hard earned income to generate a lasting effect on sending households and more importantly on these emigrants themselves to justify the motion to send more of their women to work in other countries.

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Table 1 : Lower-Skilled Female Migrants Individual and Household Characteristics

	Percentage /mean	***n***
Individual Characteristics		
Age	30.2 years	194
Marital Status		
Single	43.0 %	83
Currently Married	40.0 %	78
Separated/Widow/Widower/Divorced	17.0 %	33
Relationship with Head of Household		
Head	12.4 %	24
Wife	29.4 %	57
Children	51.5 %	100
Parents	0.5 %	1
Siblings	4.1 %	8
Other relative	2.1 %	4
Education Level		
Primary and below	47.0 %	91
Lower Secondary	34.0 %	66
Upper Secondary	18.0 %	35
University	1.0 %	2
Work History		
Years working in Indonesia	2.2 years	(3.9)
Years working in overseas	3.3 years	(3.0)
Years working in Malaysia	2.8 years	(2.7)
Type of job in Malaysia		
Maid	87.1 %	169
Factory worker	12.9 %	25
Family Characteristics#		
Household Size	4.8 persons	(1.7)
Number of household member less than 15 years old	0.9 person	(1.0)
Number of household member more than 60 year old	0.1 person	(0.4)
Number of household member aged 15 to 60	3.8 persons	(1.7)
Number of household still schooling	1.0 persons	(1.1)
Highest Education Obtained by Household member		
Primary and below	19.1 %	37
Lower Secondary	34.0 %	66
Upper Secondary	39.7 %	77
University	7.2 %	14
Household Economy		
Owning Farmland	52.0 %	101
Total Observations		**194**

Notes:
Standard Deviation in parentheses
These household size figures are inclusive of respondent themselves.

Table 2: Descriptive Statistics for Household and Head of Household for Year 2007 (IFLS4)

	Household with Migrant	*Household without Migrant*	*Overall*
Household Characteristics in mean (only include members who are still in the household)			
Household Size	4.0	4.1	4.1
Number of household members below 15 years old	1.1	1.0	1.0
Number of household members 15 to 60 years old	2.4	2.6	2.6
Number of household members above 60 years old	0.4	0.5	0.5
Number of household working in overseas	1.3	0.0	0.1
Number of household members working within Indonesia	0.4	0.5	0.4
Household Expenditure in mean (Yearly in US$ at U$1 = Rupiah9291)			
Total Household Expenditure per capita	531	687	677
Total Household Food Expenditure Per capita	319	359	356
Total Household Non Food Per capita	115	191	186
Total Household other expenditure per capita	65	101	99
Total Education Expenditure per number of schooling	142	188	184
Household Assets in mean (In US$ at US1= Rupiah 9291)			
Total Assets	6996	8508	8397
Household location in Percentage			
Urban	65%	50%	49 %
Rural	35%	50%	51%
Household Head Characteristics			
Mean Age of household head	54.5	53.0	53.1
Household Head Highest Education Obtained in Percentage			
Basic School and below (0-9 years of schooling)	89%	76%	77%
Middle School (10 to 12 years of schooling)	8%	17%	16%
Higher Education (above 12 years of schooling)	3%	7%	7%
Total Observations	**389**	**5587**	**5976**

Table 3: Various monthly incomes in mean and median (in US Dollar)

	Mean	**Median**
Actual level of income for all respondents (n=194)		
Monthly income earned in Malaysia	142	130
Previous highest monthly income earned in Indonesia	25	0
Self assessed potential monthly income earned in Indonesia	56	46
Monthly income imputed using IFLS 2007	32	27
Monthly income imputed using IFLS 2007 but replace imputed income for all respondents without positive self assessed potential income earned in Indonesia with zero.	27	22
Actual level of income for respondents with previous paid income in Indonesia (n=80)		
Monthly income earned in Malaysia	137	124
Previous highest monthly income earned in Indonesia	59	48
Self assessed potential monthly income earned	63	54
Monthly income imputed from IFLS 2007	35	31
Monthly income imputed using IFLS 2007 but replace imputed income for all respondents without positive self assessed potential income earned in Indonesia with zero.	33	22

Note:
The amount in US dollar is calculated at US$1 = Rupiah 9,291(based on average foreign exchange middle rate against rupiah for January 2008 issued by Central Bank of Indonesia).

Table 4: Gains in Monthly income For Lower-Skilled Female Migrants

Regression-based estimate:	All Respondents Model 1	Model 2	Model 3	Model 4
Change in the level of monthly income (US Dollar)				
Without covariates	118	86	110	114
	(4.6)	***(6.0)***	***(3.3)***	***(3.4)***
Controlling for work experience in Indonesia and overseas	102	84	90	91
	(8.81)	***(12.72)***	***(6.70)***	***(6.82)***
Controlling for type of job, education, marital status, work experience in Indonesia and overseas	129	86	127	117
	(15.62)	***(22.81)***	***(11.48)***	***(1197)***
Change in the log monthly income				
Without covariates	4.7	4.4	4.6	4.7
	(0.04)	***(0.06)***	***(0.03)***	***(0.03)***
Controlling for work experience in Indonesia and overseas	4.56	4.18	4.42	4.44
	(0.076)	***(0.119)***	***(0.054)***	***(0.055)***
Controlling for type of job, education, marital status, work experience in Indonesia and overseas	4.51	3.60	4.64	4.57
	(0.136)	***(0.201)***	***(0.090)***	***(0.093)***

Regression-based estimate:	Only Respondents with previous earned income Model 1	Model 2	Model 3	Model 4
Change in the level of monthly income (US Dollar)				
Without covariates	77	73	101	103
	(7.3)	***(8.2)***	***(4.4)***	***(4.6)***
Controlling for work experience in Indonesia and overseas	42	62	*80*	*83*
	(19.55)	***(22.90)***	***(11.62)***	***(12.33)***
Controlling for type of job, education, marital status, work experience in Indonesia and overseas	42	42	*109*	105
	(34)	***(39.58)***	***(19.49)***	***(21.03)***
Change in the log monthly income				
Without covariates	4.3	*4.3*	4.6	4.6
	(0.08)	***(0.08)***	***(0.04)***	***(0.04)***
Controlling for work experience in Indonesia and overseas	3.86	*3.79*	4.30	4.34
	(0.201)	***(0.220)***	***(0.093)***	***(0.096)***
Controlling for type of job, education, marital status, work experience in Indonesia and overseas	3.18	*3.28*	4.49	4.47
	(0.337)	***(0.360)***	***(0.145)***	***(0.153)***

Note:

1. Model 1 based on current monthly income in Malaysia less previous highest earned income in Indonesia. Model 2 based on monthly current income in Malaysia less self-assessed potential income earned in Indonesia. Model 3 based on current monthly income in Malaysia less imputed income obtained using IFLS 2007. Model 4 based on monthly income imputed using IFLS 2007 but replace imputed income for all respondents without positive self assessed potential income earned in Indonesia with zero.
2. Standard Error in parentheses.
3. Type of job refers is a binary variable with one for maids and zero for factory workers; Work experience in Indonesia and overseas is measured in years in absolute and square; marital status is a binary variable with one as unmarried and zero otherwise; education is a binary variable with one as having primary education and zero otherwise.
4. The amount is measured in US dollar and calculated at US$1 = Rupiah 9,291 (based on average foreign exchange middle rate against rupiah for January 2008 issued by Central Bank of Indonesia).

Table 5 : Lower-Skilled Female Migrants Remittances & Migration Behaviour

	Percentage	***n***
Frequency of Remittances		
Monthly	15.0	29
Bi-monthly	7.7	15
Every 3 months	9.8	19
Every 4 to 6 months	8.8	17
Every 7 to 12 months	7.7	15
As necessary	26.3	51
Never	24.7	48
Purpose of remittances		
Household expenditure	54.1	105
Education Expenditure	34.0	66
Repayment of Debts	12.9	25
For building/renovating house	9.8	19
Others	9.3	18
Sending goods back home		
Ever sent or brought goods home	20.1	39
Type of goods		
Electrical	3.6	7
Clothing	14.4	28
Jewellery	1.0	2
Future use of repatriated earnings		
Accumulating Fixed Assets – house/land/building	50.5	98
For investment in business or farming	23.2	45
For saving	38.7	75
For children or own education	30.4	59
Frequency of returning to home country		
Once	26.3	51
Twice	10.8	21
More than 3 times	12.4	24
Never	50.5	98
Main activities listed when asked hypothetical question, what would you be doing if you were not working in Malaysia		
Studying	4.1 %	8
Working	82.5 %	160
Neither Studying nor working	13.4 %	26
Future Plan upon completion of working contract in Malaysia		
Continue working in Malaysia	48.0 %	93
To work in other country	4.0 %	8
To stay permanently in home country	18.0 %	35
Don’t know	30.0 %	58
Total Observations		**194**

Table 6: Determinant of Remittances and Usage of Remittances among Lower-Skilled Female Migrants in Malaysia – Marginal effects from Probit Estimation

	Ever Remit	For Household Expenditure #	For Education Expenditure	For Repayment of Debts	For Purchase of Fixed Assets
Marital Status – 1=Single, 0 = Ever married	-0.043 (0.062)	0.006 (0.083)	-0.234 (0.074)**	-0.018 (0.051)	0.102 (0.047)*
Education – 1=None to Primary School, 0=Secondary and above	0.035 (0.059)	0.021 (0.080)	0.059 (0.075)	-0.004 (0.049)	-0.004 (0.039)
Income in Malaysia (USD/1000)	2.116 (1.029)*	2.296 (0.994)*	0.341 (0.933)	-0.957 (0.818)	0.911 (0.430)*
Type of Job – 1=Maid, 0=Factory worker	-0.023 (0.088)	0.302 (0.115)**	-0.016 (0.125)	0.073 (0.061)	0.058 (0.034)+
Years working in Malaysia	0.072 (0.017)**	0.027 (0.016)+	0.014 (0.013)	-0.003 (0.010)	-0.000 (0.008)
Number of household member in Indonesia below 15 years old	-0.021 (0.028)	-0.007 (0.039)	0.097 (0.035)**	0.021 (0.022)	0.026 (0.017)
Number of household member in Indonesia above 60 years old	-0.027 (0.078)	-0.232 (0.111)*	-0.049 (0.104)	0.081 (0.060)	-0.005 (0.050)
Number of household members in Indonesia in labour force	-0.010 (0.020)	0.007 (0.027)	0.035 (0.026)	-0.011 (0.017)	-0.012 (0.013)
Own farmland in Indonesia	-0.032 (0.058)	-0.053 (0.078)	-0.047 (0.074)	0.014 (0.047)	0.079 (0.039)*
Wealth Index for household in Indonesia@	0.014 (0.017)	0.018 (0.023)	0.027 (0.021)	0.014 (0.013)	0.005 (0.010)
Observations	194	194	194	194	194
LR Chi Square	36.72	23.16	28.84	8.16	18.21
Probability > Chi Square	0.0001	0.0102	0.0013	0.6131	0.0515
Pseudo R Square	0.1692	0.0865	0.1159	0.0547	0.1464

Notes:
Standard errors in parentheses: + significant at 10%; * significant at 5%; ** significant at 1%.
#Household expenditure includes food, non-food and other household daily expenditure.
@Based on the first component from Principal Component Analysis from 13 variables as described in footnote nine.

Table 7: Determinants of Planned Use of Repatriated Income among Lower-Skilled Female Migrants in Malaysia – Marginal effects from Probit Estimation

	Fixed Assets	**Investment**	**Saving**	**Education**
Marital Status – 1=Single, 0 = Ever married	0.163 (0.080)*	0.031 (0.069)	0.086 (0.079)	-0.304 (0.068)**
Education – 1=None to Primary School, 0=Secondary and above	0.122 (0.077)	0.014 (0.065)	0.034 (0.075)	0.049 (0.071)
Income in Malaysia (USD/1000)	0.761 (0.963)	0.547 (0.754)	0.033 (0.112)	-2.558 (1.009)*
Type of Job – 1=Maid, 0=Factory worker	0.133 (0.116)	-0.088 (0.109)	0.033 (0.112)	-0.093 (0.131)
Years working in Malaysia	0.011 (0.015)	0.005 (0.012)	-0.012 (0.015)	-0.007 (0.014)
Number of household member in Indonesia below 15 years old	0.006 (0.037)	0.014 (0.031)	0.016 (0.036)	0.045 (0.034)
Number of household member in Indonesia above 60 years old	-0.037 (0.108)	0.110 (0.084)	-0.156 (0.111)	0.083 (0.100)
Number of household members in Indonesia in labour force	0.003 (0.026)	0.009 (0.021)	0.022 (0.025)	0.008 (0.024)
Own farmland in Indonesia	0.032 (0.077)	0.044 (0.063)	0.011 (0.075)	0.139 (0.068)*
Wealth Index for household in Indonesia@	0.017 (0.023)	-0.000 (0.018)	0.007 (0.021)	0.007 (0.020)
Observations	194	194	194	194
LR Chi Square	8.02	6.02	5.83	31.21
Probability > Chi Square	0.6272	0.8133	0.8292	0.0005
Pseudo R Square	0.0298	0.0287	0.0225	0.1309

Notes:
Standard errors in parentheses: + significant at 10%; * significant at 5%; ** significant at 1%.
#Household expenditure includes food, non-food and other household daily expenditure.
@Based on the first component from Principal Component Analysis from 13 variables as described in footnote nine.

Table 8 : The Determinants of Yearly Household Expenditure (in Log) & Total Non-Business Assets (in Log) using Fixed Effect Model based on Indonesia Family Life Survey Data (1997, 2000 & 2007)

	Total Expenditure per capita in Log	**Total Food Expenditure Per Capita in Log**	**Total Non-Food Expenditure Per Capita in Log**	**Total Education Expenditure Per student in Log**	**Total Other Expenditure Per Capita in Log @**	**Total Assets in Log ++**
Household ever had member working overseas	-0.041	-0.010	-0.045	-0.077	-0.095	0.125
	(0.028)	(0.028)	(0.044)	(0.063)	(0.058)	(0.059)*
Household ever had member working within Indonesia (Intra migrant)	-0.005	-0.006	-0.019	-0.050	0.050	0.045
	(0.014)	(0.014)	(0.023)	(0.033)	(0.028)+	(0.034)
Current household size	-0.111	-0.119	-0.105	-0.005	-0.085	0.086
	(0.004)**	(0.004)**	(0.006)**	(0.010)	(0.007)**	(0.009)**
Education level for household head – Middle Education (10 to 12 years) #	0.037	-0.004	0.094	-0.120	0.042	0.025
	(0.023)	(0.023)	(0.036)**	(0.055)*	(0.048)	(0.046)
Education level household head – Higher Education (more than 12 years) #	0.145	0.074	0.196	-0.012	0.181	-0.013
	(0.039)**	(0.043)+	(0.058)**	(0.092)	(0.080)*	(0.066)
Year – 2000 (base year:1997)	0.734	0.760	0.780	0.830	0.709	0.723
	(0.009)**	(0.009)**	(0.015)**	(0.019)**	(0.018)**	(0.019)**
Year – 2007 (base year:1997)	1.619	1.538	2.011	2.225	1.531	1.774
	(0.010)**	(0.010)**	(0.017)**	(0.025)**	(0.020)**	(0.023)**
Constant	14.183	13.732	12.094	11.885	11.608	15.164
	(0.020)**	(0.021)**	(0.032)**	(0.058)**	(0.037)**	(0.057)**
Observations	17928	17928	17915	10745	17870	12750
Number of households	5976	5976	5976	4948	5976	4256
R-squared: within	0.76	0.72	0.63	0.64	0.39	0.47
R-squared: between	0.07	0.09	0.05	0.11	0.04	0.02
R-squared: overall	0.50	0.52	0.37	0.35	0.23	0.20
F-Statistics	4689.40	4090.37	2653.36	1293.00	1061.93	910.90
Probability > F	0.000	0.000	0.000	0.000	0.000	0.000

Note:
Robust standard errors in parentheses: + significant at 10%; * significant at 5%; ** significant at 1%. The standard errors are clustered by household.
- The controlled group for education level for household head is those with basic education and below (less than 9 years of education).
@ Other expenditure refers to purchase of durable assets such as electrical appliances or vehicles.
++ Non-business assets refer to fixed assets such as land, houses or buildings

Table 9: The Determinants of Yearly Household Expenditure (in Log) & Total Non-Business Assets (in Log) using Fixed Effect Model based on Indonesia Family Life Survey Data (1997, 2000 & 2007) for Urban Area Only

	Total Expenditure per capita in Log	**Total Food Expenditure Per Capita in Log**	**Total Non-Food Expenditure Per Capita in Log**	**Total Education Expenditure Per student in Log**	**Total Other Expenditure Per Capita in Log @**	**Total Non-Business Assets in Log ++**
Household ever had member working overseas	0.052	0.111	0.005	0.082	0.044	0.275
	(0.054)	(0.052)*	(0.083)	(0.122)	(0.118)	(0.115)*
Household ever had member working within Indonesia (Intra migrant)	-0.006	-0.005	-0.038	-0.112	0.072	0.009
	(0.022)	(0.023)	(0.034)	(0.052)*	(0.045)	(0.063)
Current household size	-0.105	-0.113	-0.099	-0.020	-0.081	0.058
	(0.005)**	(0.006)**	(0.008)**	(0.013)	(0.010)**	(0.016)**
Education level for household head – Middle Education (10 to 12 years) #	0.015	-0.009	0.051	-0.175	-0.010	0.048
	(0.030)	(0.031)	(0.044)	(0.070)*	(0.061)	(0.094)
Education level household head – Higher Education (more than 12 years) #	0.096	0.019	0.125	-0.104	0.184	-0.005
	(0.048)*	(0.055)	(0.069)+	(0.111)	(0.100)+	(0.101)
Year – 2000 (base year:1997)	0.666	0.720	0.628	0.734	0.655	0.700
	(0.013)**	(0.014)**	(0.021)**	(0.026)**	(0.027)**	(0.034)**
Year – 2007 (base year:1997)	1.547	1.487	1.833	2.133	1.442	1.653
	(0.015)**	(0.016)**	(0.024)**	(0.034)**	(0.030)**	(0.042)**
Constant	14.446	13.892	12.653	12.487	11.905	15.693
	(0.029)**	(0.030)**	(0.045)**	(0.081)**	(0.055)**	(0.115)**
Observations	8114	8114	8111	5009	8097	5020
Number of households	3084	3084	3083	2448	3081	1953
R-squared: within	0.75	0.72	0.63	0.65	0.38	0.39
R-squared: between	0.21	0.26	0.12	0.12	0.10	0.09
R-squared: overall	0.48	0.51	0.36	0.36	0.22	0.17
F-Statistics	1873.16	1626.29	1108.64	603.91	418.00	239.35
Probability > F	0.000	0.000	0.000	0.000	0.000	0.000

Note:Robust standard errors in parentheses: + significant at 10%; * significant at 5%; ** significant at 1%. The standard errors are clustered by household.
- The controlled group for education level for household head is those with basic education and below (less than 9 years of education).
@ Other expenditure refers to purchase of durable assets such as electrical appliances or vehicles.
++ Non-business assets refer to fixed assets such as land, houses or buildings

Table 10: The Determinants of Yearly Household Expenditure (in Log) & Total Non-Business Assets (in Log) using Fixed Effect Model based on Indonesia Family Life Survey Data (1997, 2000 & 2007) for Rural area Only

	Total Expenditure per capita in Log	Total Food Expenditure Per Capita in Log	Total Non-Food Expenditure Per Capita in Log	Total Education Expenditure Per student in Log	Total Other Expenditure Per Capita in Log @	Total Non-Business Assets in Log ++
Household ever had member working overseas	-0.075	-0.064	-0.041	-0.091	-0.140	0.080
	(0.034)*	(0.034)+	(0.056)	(0.080)	(0.069)*	(0.071)
Household ever had member working within Indonesia (Intra migrant)	-0.007	-0.002	-0.026	-0.002	0.028	0.058
	(0.019)	(0.020)	(0.031)	(0.045)	(0.038)	(0.039)
Current household size	-0.118	-0.126	-0.119	0.010	-0.087	0.094
	(0.006)**	(0.006)**	(0.010)**	(0.015)	(0.011)**	(0.012)**
Education level for household head – Middle Education (10 to 12 years) #	0.092	0.026	0.148	-0.019	0.156	0.023
	(0.038)*	(0.039)	(0.061)*	(0.096)	(0.087)+	(0.053)
Education level household head – Higher Education (more than 12 years) #	0.303	0.268	0.400	0.224	0.268	0.042
	(0.077)**	(0.080)**	(0.116)**	(0.185)	(0.156)+	(0.097)
Year – 2000 (base year:1997)	0.791	0.794	0.902	0.901	0.767	0.729
	(0.012)**	(0.013)**	(0.021)**	(0.027)**	(0.025)**	(0.023)**
Year – 2007 (base year:1997)	1.671	1.575	2.144	2.273	1.595	1.837
	(0.014)**	(0.014)**	(0.024)**	(0.038)**	(0.029)**	(0.028)**
Constant	13.977	13.604	11.689	11.367	11.355	14.869
	(0.030)**	(0.031)**	(0.047)**	(0.087)**	(0.054)**	(0.065)**
Observations	9811	9811	9801	5733	9770	7727
Number of households	3548	3548	3548	2812	3546	2778
R-squared: within	0.76	0.73	0.64	0.63	0.40	0.52
R-squared: between	0.19	0.21	0.11	0.22	0.07	0.04
R-squared: overall	0.55	0.55	0.42	0.41	0.24	0.25
F-Statistics	2601.64	2261.22	1414.57	615.31	509.59	656.99
Probability > F	0.000	0.000	0.000	0.000	0.000	0.000

Note:Robust standard errors in parentheses: + significant at 10%; * significant at 5%; ** significant at 1%. The standard errors are clustered by household.
- The controlled group for education level for household head is those with basic education and below (less than 9 years of education).
@ Other expenditure refers to purchase of durable assets such as electrical appliances or vehicles.
++ Non-business assets refer to fixed assets such as land, houses or buildings.