

Inter-relationships of Migration and Health of the Elderly in Left-behind Households: Some Evidence from Four Waves of the Indonesia Family Life Surveys

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Extended Abstract

The relationship between migration and the well-being of the family left behind is an important topic in migration literature that is still not well understood. Part of the difficulties is that it is difficult to isolate the causal pathways between the two. Migration of household members of prime age may reduce the household's availability of labor to work on the household farm. The loss of a household member to migration may also mean a loss of elderly support. On the other hand, as is well known in the migration literature, migration of household members to other regions may actually increase household well-being through remittance or by mitigating the risk of local shock such as crop failures. The relationship between migration and well being is of household well being is not clearly understood, and much less is the causality between them.

The paper uses data from four waves of the Indonesia Family Life Survey, IFLS1(1993), IFLS2(1997), IFLS3(2000), and the new IFLS4(2007) to explore the relationship between migration and well-being of the elderly, with the focus on health. Using longitudinal data may not solve the difficulties of isolating the causal pathways between migration and well being of the left-behind household members, but it does add substantial insights to our understanding of the relationships.

We will first look at the relationships between migration of prime age household members and changes in household structure and living arrangement. The longitudinal nature of the data will help us see whether a household has lost members to migration between survey waves and how living arrangement in the household has shifted after the migration. It may be possible, for example, to see from the data households in which elderly members suddenly find themselves without someone to care for them.

We will then look at health outcomes among elderly across survey waves spanning over 14 years, during which some proportion of households had some members migrating and the rest did not. We focus on a number of health measures, including subjective measures such as the self-reported general health status (GHS), activities of daily living (ADL/IADL), a 10-question version of the CES-D measure of mental health/depression, as well as objective health measures such as hemoglobin levels, body mass indices, and cholesterol levels.

Data

The Indonesia Family Life Survey is a longitudinal household survey that collects a vast array of information from individuals, households, communities, and health and education facilities. Information collected from individuals and households include key socio-economic variables such consumption expenditure, income, assets, education, a number of labor market outcomes including work history, and migration history. Other topics such as fertility and marital history, transfers, were also collected. On

health, extensive measures of health, such as self-reported and nurse-reported health status, activities of daily living, morbidity experience, uses of health facilities were collected. In addition, objective health measures such as height, weight, blood pressure, pulse, hemoglobin level, lung capacity and other measures were taken. In IFLS4, some additional health measures were added including blood cholesterol levels, grip strength, sitting height.

The first wave of IFLS, collected in 1993, interviewed 7,224 households and around 22,000 individuals. Health measurements were taken from around 24,000 individuals. Starting from IFLS2 (1997), the IFLS also track and interview some members who left their original households, even if they moved outside the enumeration areas. In IFLS2, the total number of households interviewed, including the split-off households was around 7,600. Around 29,000 individuals had their health measured. In IFLS3 (2000) the number of households interviewed was around 10,400 and the number of individuals who had their health measures taken was close to 36,500. In the new IFLS4 collected in 2007, the number of households interviewed is around 13,500, and almost 42,000 individuals had their health measured.

Tracking the movers helps to keep attrition rates – an inherent weakness of any longitudinal survey – of the IFLS low. For longitudinal analysis of health and migration, this is crucial because migration is typically positively correlated with human capital and health. Unobserved factors affecting decision to migrate may also be affecting some dimensions of health. The longitudinal nature of the survey, the availability of an extensive set of health measures, and low attrition rates makes the IFLS very suitable for our analysis on the relationship between poverty and health in later life.

Health Markers

In this paper, we will focus on a number of health markers that are known to be closely related to socio-economic indicators such as income, wealth, and poverty.

- **Blood hemoglobin levels.** Blood hemoglobin levels are of interest because low levels indicate problems of iron anemia, which can have various negative functional consequences.¹ Iron deficiency is associated with lower endurance for physical activity. For some types of employment, iron deficiency may affect productivity significantly.
- **Body mass index.** Body mass index, defined by weight (in kg) divided by height (in m) squared have been shown to be associated with various health outcomes. Extreme values of BMI: undernourished (below 18.5), overweight (above 25) and obese (above 30) are associated with elevated morbidity and mortality. Studies have also shown the association between BMI and income: BMI rises as aggregate income increases, and the distribution of BMI shift to the right as development proceeds. In Indonesia, data from IFLS2 and IFLS3 shows that while a fraction of adults are still undernourished, a relatively high fraction of adults are overweight, especially among women with the incidence around 25 and 30% in 1997 and 2000 respectively.² The substantial degree of overweight is an example of a phenomenon that is of increasing importance in poor countries as well as rich.
- **Waist circumference.** Waist circumference along with BMI is a predictor of coronary heart disease.

¹ Hemoglobin levels may also be low if a person has an infection, or for other reasons

² John Strauss, Kathleen Beegle, Agus Dwyiyanto, Yulia Herawati, Daan Pattinasarany, Elan Satriawan, Bondan Sikoki, Sukamdi, Firman Witoelar (2004), *Indonesian Living Standards: Before and After the Financial Crisis*, Singapore: RAND/ISEAS.

- **Blood cholesterol levels.** Studies have shown cumulative effects of obesity, high blood pressure, high cholesterol with the risk of cardiovascular diseases. Tests to measure total cholesterol level and HDL were administered to respondents age 40 and above in the IFLS4.
- **10-question version of Center for Epidemiologic Studies Depression Scale (CES-D).** The CES-D scale is one of the most common measures to determine individual's depression quotient. This scale has been used in other population-based surveys and was added in IFLS4.
- **Activities of daily living/instrumental activities of daily living (ADL/IADL).** The IADL , which is new in IFLS4, is especially useful since this measure ask about activities related to independent living such as preparing meals, shopping for groceries, taking medications.
- **Self reported general health status (GHS) and nurse-reported health status.**