Socio-economic Success and Health in Later Life: Evidence from the Indonesia Family Life Surveys

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Firman Witoelar, *SurveyMETER*
Bondan Supraptilah Sikoki, *SurveyMETER*
John Strauss, *University of Southern California*

Extended Abstract

The complex relationship between health and socio-economic success is one of the most active topics in population and development microeconomics research. Recent years have brought significant advances in research methodology both at the theoretical and empirical level.[1] However many questions remain unresolved.

There are several reasons why the relationship between health and socio-economic outcomes at different stages in the life cycle will always be particularly difficult to disentangle. *First*, health evolves over the life cycle. One of the key contributions in the literature on this area suggests that health very early in life may effect on health and well being through the entire life course. This means that thinking about health in terms of dynamics may always be necessary if we want to add useful insights to our understanding about health outcomes at different points in life. *Second*, health is multidimensional and hard to measure. For example, while some health indicators may suggest that an individual is relatively healthy, other health indicators may suggest otherwise. Often the only available data on health comes from self-reported responses, of which interpretations are complicated by the fact that they may not reflect true health outcomes but influenced by other factors that may affect other outcome of interest. Even objective measures of health are, too some extent, subject to measurement errors, although good training of field enumerators who collect the data may minimize the errors. *Third*, while health may affect socio-economic status and well-being through various pathways, health and health behavior may also be affected by resources owned by individuals, households, and communities. Biological and health literatures have shown that there are contemporaneous feedbacks between health and productivity. There are many possible pathways through which health affect economic outcomes and vice verso throughout a life cycle. For example, health early in life affects not only health later but it may also affect other human capital such as education that in turn will influence employment, earnings and other economic outcomes. On the other hand the type of employment one does may affect health later in life and longevity.

Along with the methodological innovations, recent years have also seen increases in the quantity and quality of household surveys that collect information socio-economic variables and health status. Some of these surveys are longitudinal in nature, which is particularly useful for looking at the dynamic aspect of health. There are also a growing number of household surveys that collect objective measures of health or health markers in addition to collecting subjective measures of health.

This paper will take advantage of these recent advances to investigate the relationships between socio-economic success and health. Along with using the existing, including recent, theoretical and empirical

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[1] Strauss, John. and Duncan Thomas, "Chapter 54: Health in the Life Cycle", in *Handbook of Economic Development Volume IV,* edited by T. Paul Schultz and John Strauss, North Holland-Elsevier, p. 3375-3474

insights to the literature, we will utilize data from four waves of the Indonesia Family Life Surveys, including the newly available IFLS4, to focus on the relationship between socio-economics and health later in life.

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, biomarkers were taken, such as height, weight, waist circumference, blood pressure, pulse, hemoglobin level and lung capacity. In IFLS4, some additional health measures were added including blood cholesterol levels (total and HDL), grip strength and leg length.

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 2004, 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, this is important 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.

Socio-Economic Variables

As discussed above, information on key variables indicating socio-economic status (SES) are available in all waves of the IFLS. This includes key variables such as consumption expenditure (from which an indicator of economic status such is whether a household is below a defined poverty line can be constructed), education (including education of parents as well as other household members, and assets, which can also be used to define poverty. Data from four waves of the IFLS spanning over 14 years will be utilized to look at the relationship across time. The longitudinal nature of the data enables us to look at the changes as well as levels.

Health Markers

In this paper, we will focus on a number of health markers that are known in Indonesia to be problems among the elderly and that are in addition known to be closely related to socio-economic indicators such as income, wealth, and poverty. We will focus on the older population, those 50 years and older, to be comparable to the Health and Retirement Study (HRS) and its offshoots.

- **Blood hemoglobin levels**. Blood hemoglobin levels are of interest because low levels indicate problems of iron anemia, which can have various negative functional consequences.[2] Iron

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

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.[3] 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, by indicating body fat content.

- **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. The ratio of total to HDL is a commonly used risk factor that we can calculate.

- **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.

- **Self reported general health status** (**GHS**) and **nurse-reported health status**

- **Activities of daily living/instrumental activities of daily living (ADL/IADL)**

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[3] John Strauss, Kathleen Beegle, Agus Dwiyiyanto, Yulia Herawati, Daan Pattinasarany, Elan Satriawan, Bondan Sikoki, Sukamdi, Firman Witoelar (2004), *Indonesian Living Standards: Before and After the Financial Crisi*s, Singapore: RAND/ISEAS.