



# Dynamics in health and employment: Evidence from Indonesia

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## ABSTRACT

This paper identifies for the first time, the separate causal impacts of both onsets of, and recoveries from, physical disability on both employment status and hours worked. Using panel data from Indonesia we find that more than half of working age adults in our sample experience a physical disability at least once in four waves over 16 years. Changes in physical functioning have no effect on hours worked among the employed. However, onsets of physical limitations lead to an increase in the probability of leaving employment, while recoveries increase the probability of returning to work. A larger effect is found among self-employed workers compared to salaried workers. Given the rising prevalence of physical limitations with age, physical disability may be a significant barrier to employment for older working age adults in Indonesia. These results overall point towards a need in Indonesia for policies that support maintaining work or returning to work for persons with physical disability.

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## 1. Introduction

The proposition that health in general, and disability in particular, may affect employment seems reasonable, if not obvious (Bowen & Finegan, 1969; Currie & Madrian, 1999). There is much evidence on the impact of health on lost productivity and wages in low- and middle-income countries (LMICs), where health is often measured using anthropometrics data.<sup>1</sup> However, the negative impact on labor market outcomes of health proxied by self-reported indicators including physical disability is documented mostly in high-income countries (e.g., Cai, Mavromaras, and Oguzoglu (2014), García Gómez and López Nicolás (2006)). This paper assesses the effects of physical disability on paid employment in an aging population in Indonesia.

Several studies in LMICs find that persons with disabilities are less likely to be employed.<sup>2</sup> In a study of 15 countries, Mizunoya and Mitra (2013) show results that are more mixed: they find a sig-

nificantly lower employment rate in nine out of 15 countries. They also find a great degree of heterogeneity across countries in the employment rate of persons with disabilities relative to persons without disabilities. It is possible that in LMICs, some labor markets have more flexibility and fluidity that make it possible to stay or return to work following a health shock or disability onset. The absence or limited coverage of social protection programs associated with disability may also contribute to keeping people in the workforce (OECD, 2003).

Assessing the effects of health and disability on labor market outcomes in LMICs is important for several reasons. First, there is evidence of an epidemiological transition in terms of declining mortality and increasing morbidity (Shrestha, 2000). With longer lives comes increasing prevalence of chronic health conditions, the number of years in a working life with health problems and disability is on the rise, and evidence on the economic consequences of disability onsets with causal interpretation remains limited. Second, an increase in the incidence of disability with aging also comes with substantial transitions in disability with individuals reporting both onsets and recoveries over time, consequently making it important to estimate the separate causal effects of both disability onsets and recoveries in the short-run on labor market outcomes (Burchardt, 2000; Diaz-Venegas, Reistetter, & Wong, 2016; Maddox, Clark, & Steinhauer, 1994). Third, few individuals and households are formally insured against health shocks whether through health insurance, sick leave or disability insurance. Therefore, the link between health as proxied by disability

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<sup>1</sup> For instance, Alderman, Behrman, and Hoddinott (2005), Rivera and Currais (2005), Thomas and Strauss (1997), Thomas et al. (2006).

<sup>2</sup> Examples of such studies include: Gayle-Geddes, 2015 (Jamaica); Hoogeveen, 2005 (Uganda); Mete, 2008 (Eastern Europe); Mitra, 2008 (South Africa); Mitra & Sambamoorthi, 2008 (India); Payne, Mkandawire, & Kohler, 2013 (Malawi); World Bank, 2009 (India); Trani & Loeb, 2010 (Afghanistan and Zambia); WHO-World Bank, 2011 (59 countries).

and labor market outcomes is of increasing policy relevance. Last, there is growing evidence of a correlation between disability and poverty (Mitra, Posarac, & Vick, 2013; Trani, Bakhshi, Myer Tlapek, Lopez, & Gall, 2015; Trani, Kuhlberg, Cannings, & Chakkal, 2016). In the case of Indonesia, such correlation has been found to be robust to various disability measures and data sets (Priebe, 2017). Exits from work due to disability may be a causal path into poverty.

There are only a handful of studies in LMICs that attempt to analyze the impact of physical disability on labor market outcomes. Three of four studies on employment status find a negative effect (Gertler & Gruber, 2002; Mete, Ni, & Scott, 2008; Pohl, Neilson, & Parro, 2013; Schultz, 2008). Four studies on hours worked find a negative impact (Gertler & Gruber, 2002; Mete et al., 2008; Schultz, 2008; Schultz & Tansel, 1997). While Genoni (2012) and Schultz (2008) do not find a significant effect on individuals' earnings, Schultz and Tansel (1997) do. The above studies vary in the size and significance of the estimated effect across disability measures.

The body of evidence is somewhat mixed partly due to challenges in measuring health and the complex relationships between health and labor market outcomes. Health can be measured with many facets and levels of severity. Another challenge lies in econometrically isolating the causal impact of health on economic outcomes. The relationship between health and labor market outcomes is complex, with positive (e.g. mental health benefits that may come from social networking at work) and negative (e.g., through work-related stress or injuries) relationships. Thus, health decrements cannot be treated as exogenous. Finally and more specifically, the existing literature makes no distinction between the economic cost of disability onset and the economic gains associated with recovery from disability.

This paper addresses several questions on the dynamics of disability and labor market outcomes that have received limited attention in LMICs. First, how prevalent are physical disability onsets and recoveries? Second, in the short-run, how do individuals adjust their employment status and hours worked to a physical disability onset? Third, what is the impact of a recovery from physical disability on employment and hours worked? Fourth, do these effects differ by gender and type of employment?

To examine these questions, we construct a unique panel dataset following working age adults for 14 years through four waves of the Indonesian Family Life Survey (IFLS) to separately identify for the first time, the causal effects of both onsets of physical disability as well as recoveries from physical disability on employment and hours worked. We also address endogeneity concerns in estimating the relationship between disability and labor market outcomes using a split first-difference (FD) and split first difference instrumental variable (FD-IV) estimation strategy. Our preferred split FD-IV estimates show that onset of physical disability as well as recovery from physical disability affects employment exit and entry respectively, but has no impact on hours worked conditional on employment.

## 2. Background

In Indonesia, during the period of this study, 1993–2007, unemployment fluctuated from 3.9% in 1995, to 9.9% in 2004, and down to 8.4% in 2008 (World Bank, 2015). The Asian Economic Crisis also affected Indonesia in 1996/97, which led to a strong labor market response from women moving from unemployed or being family workers into self-employment to compensate for the relative earning losses of their husbands (Feridhanusetyawan, 1999). In Indonesia, as in LMICs in general, labor markets are segmented and most employment is found in

the informal sector, where people are self-employed or work in microenterprises. The informal sector has commonly been characterized as an “easy-entry sector that workers can enter to earn some cash in preference to earning nothing” (Fields, 2005). Fields points “barriers to entry to such occupations are small or non-existent. In some contexts, primarily urban, all that would-be workers need to do is make a minimal investment in the product or service to be sold.” This ease of entry into the informal sector helps explain the relatively low level of unemployment rates in many LMICs, and may facilitate the re-entry into the labor market after a health shock.

During the study period, access to social insurance or protection programs that may address the employment consequences of health shocks was limited. In 2008, 17% of the employed population enjoyed formal social security mainly for employees of the formal sector (ILO, 2010). Social security for informal workers, about two-thirds of all workers, was not available (ILO, 2010). Social security reform in the country was boosted by the enactment of Republic Law number 40 of 2004 concerning the National Social Security System (SJSN – Sistem Jaminan Sosial Nasional) which established a National Social Security Board charged with making recommendations for the development of new old-age, survivors, health insurance, and work injury programs (ILO, 2008). The implementation was delayed and did not come into effect during our study period.

However, it should be noted that during the study period, several social protection programs were introduced following the financial crisis of 1998. In particular, two programs were introduced in relation to health: the health card program from August 1998 and the Askeskin program from 2005. Both programs, despite some targeting errors, included largely poor people and informal sector workers and affected health care utilization (Sparrow, 2008; Sparrow, Suryahadi, & Widianti, 2013).

This study examines the impact of health, and its aim is not to isolate the effects of particular policy reforms. Instead, it focuses on economic cost of health as measured by disability for the entire working age population. The broad working-age population is not a target group for social protection purposes in Indonesia and yet is a group whose health status is intuitively most likely to affect the economic welfare of the household.

## 3. Data and measures

### 3.1. Data

The data used in this paper is a balanced panel that comes from the 1993, 1997, 2000 and 2007 waves of the IFLS, a large-scale socio-economic panel survey conducted in Indonesia. The IFLS collects extensive information at the individual, the household, and the community level. The survey includes modules on health, education, household composition, employment history, labor and non-labor income, among others.<sup>3</sup> The sample surveyed in 1993/94 represented 83% of the Indonesian population living in 13 of Indonesia's 27 provinces at the time.

The IFLS is unique in a number of ways: (1) it links individual, household, and community level data bringing together an enormous amount of information that enables us to better understand the impact of disability on individual level employment and hours worked; (2) few other surveys collect data on disability over a 14 year period that enables us to examine the effects of both onsets and recoveries from physical activity limitations; (3) the panel data nature of the IFLS is particularly useful for addressing the presence of time-invariant unobservables such as one's own ability to fight

<sup>3</sup> Strauss et al. (2004) for more details on sample selection and survey instruments.

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