

2020

## 36<sup>th</sup> IARIW General Conference

Effects of Pension Income on Disability Status and Trajectories: Evidence from China  
Background and Aims

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Older people often face health problems and are at risk of financial insecurity. Social pensions are increasingly used worldwide to curb old age poverty and economic insecurity. It is important to examine life opportunities related to health and wellbeing among older adults empirically as life expectancy increases worldwide and inequalities in income and health persist into old age.

In this paper, we exploit the staggered introduction of a large pension scheme in rural China in a quasi-experimental design and two rich, national longitudinal datasets on older people, their families, and communities to identify the causal impact of pension income on disability status and trajectories. We also investigate the disparities in the impact of pension income on disability and the effect mechanisms by sex, disability status, and income level at baseline.

In 2009, in response to increased costs of living and reduced land resources, declining fertility rates, and greater longevity, China launched the National Rural Pension Scheme (NRPS), now the largest pension program in the world in terms of the number of beneficiaries, to provide pension income to rural residents who previously were ineligible for pensions. By the end of 2010, about 32% of rural residents participated in NRPS. Since 2012, almost 100% of counties have been covered with NRPS.

This paper has the following specific aims. First and foremost, using a quasi-experimental design, we estimate the causal impact of pension income on disability status and trajectories, important aspects of health among the older population not considered in prior literature in China or globally. Second, we use two national, longitudinal datasets to estimate the short- and medium-term effects of pension income on disability among older adults, whereas earlier studies could not examine health outcomes at a single time point. Third, we investigate the mechanisms through which pension income influences disability among older adults. The mechanism channels we examine include improved access to health care services and goods, reduced morbidity and labor supply, and increased independent living. Lastly, we examine disparities in

these effects and mechanisms by sex, disability status, living arrangement, and income level at baseline to offer in-depth knowledge and insights into the complex and differentiated impact of pension income on disability across subgroups.

## Data and Sample

The two datasets to be used are the China Health and Retirement Longitudinal Study (CHARLS) and the Chinese Longitudinal Healthy Longevity Survey (CLHLS). CHARLS is a balanced panel that comes from the 2011, 2013, 2015 and 2017 waves of a nationwide household survey in China. It is conducted by the National School of Development at Peking University, aiming to be representative of the Chinese residents aged 45 years and older and their spouses at the national level and in urban and rural areas. The first wave of CHARLS of 2011 interviewed 10,257 households containing 17,587 respondents aged 45 years and over and their spouses.

The second dataset, CLHLS, was conducted by the Center for Healthy Aging and Development Studies at Peking University. It collects extensive information on health and quality of life of individuals age 60 and above in China. The sample is from 22 provinces of China representing 85% of the Chinese population. For the purpose of this analysis, we will use the 2008/09, 2011/12 and 2014 waves.

In CHARLS, we focus on the sample of individuals in rural areas age 60 and older in 2011 who were followed in 2013, 2015 and 2017 waves. We exclude individuals who did not have disability indicators and income in 2011, and at least one disability indicator observed in another wave. We have a balanced panel of 18,521 individuals for the analysis. Similarly, in CLHLS, we focus on the sample of rural older adults age 60 and above and exclude observations who had missing information on disability indicators and income in 2011 and had other pensions than the NRPS. The analytical sample is about 4,100 individuals.

## Measures

Disability is a multifaceted notion that is notably challenging to measure. We analyze a comprehensive range of disability outcomes for older individuals. First, Activity of Daily Living (ADL) is measured both as a Yes/No variable and an index. It contains six questions related to limitations in basic ADLs: dressing, bathing, eating, walking, toileting, urination and defecations. Those answering Yes to any of these questions are coded as having ADL limitations. We also use the sum of these items to create an index.

Second, Instrumental Activity of Daily Living (IADL) is measured by six questions: managing money, taking medications, grocery shopping, preparing hot meals, and house cleaning. As for basic ADLs, we construct a binary indicator and an index for IADL.

Lastly, impairment is measured by a question “Do you have one of the following disabilities? 1) physical disabilities; 2) brain damage/mental retardation; 3) vision problem; 4) hearing problem; and 5) speech impediment.” Persons answering yes are further prompted to report the year when this disability started. We consider people who answer yes to at least one of the five questions as having an impairment and calculate age at onset.

### Empirical Strategy

Using a quasi-experimental design and longitudinal data, we estimate the causal impact of pension income on disability status and trajectories among older adults. Empirically, we adopt a First Difference-Instrumental Variable (IV) combination approach to approximate causality. We use duration since the NRPS rollout at the community level as an instrument for pension income. The longer this time period, the more likely an individual is to know about NRPS and to claim it.

### Impact and Implications

This study will shed light on the short- and medium-term health impact of pension income on older adults. These results will also have particular implications for the 15% of the world population living with disabilities broadly and for older people in China specifically. Evidence from the subgroup analysis will also enable us to understand the multidimensional inequalities in life opportunities during old age, especially pertaining to income and health.