

# Chapter 1

## Additional South African Evidence on Pensions and Child Growth

### 1.1 Abstract

In this paper I look at the effect of the gender of pension recipients on the growth of children in the same households.

I do this by comparing z-scores of anthropometrics of South African children living in the same household as state pension recipients. This paper exploits the fact that the data set consists of two surveys which were done before and after the lowering of the pension eligibility age for men to the same age as women.

The main preliminary finding is that the household effect was only significant in 2012.

### 1.2 Introduction

This paper looks at the effect of the gender of pension recipients on the growth of children in their household in South Africa. The approach is very similar to Duflo (2000,2003). The deviation from international standards Child Growth Standards for weight-for-height and length-for-age are computed as z-scores. These are then compared for different pension recipient status.

The anthropometrics are useful for computing z-scores. These z-scores are considered a good representation of short-term or long-term malnutrition respectively, especially for children between 6 and 60 months old.

The South African pension is a useful variable to measure income because of its criteria. Besides a maximum level of income, the only criterium is the age of a person. Because of this the status as a recipient is quite exogenous and there are few selection bias problems. The problematic difference between the eligibility age of men and women was eliminated between the two surveys which creates an interesting natural experiment.

Duflo finds evidence in South Africa's 1993 Integrated Household Survey that girls' short term nutrition (weight-for-height) was positively influence by

living with the maternal grandmother if the grandmother was eligible for a state pension. This is directly after the significant increase in the pension sum for blacks. The pension-eligibility age at this time was 60 for women and 65 for men.

This study deviates from the Duflo study in several ways. In 2008 and 2012 the first and second wave of the National Income Dynamics Study have gathered similar data. In the period 2008-2010, the government lowered the eligibility age for men from 65 to 60 (Announcement).

This happened in a few steps. As of July 16th 2008 men aged 63 and 64 were eligible for a pension. Men aged 61 and 62 became eligible in April 2009. Finally in January 2010, pension eligibility age was at 60 for all citizens.

Another deviation is the usage of Child Growth Standards in stead of CDC's, since these have superseded the CDC charts, however this should not be of any consequence.

The main preliminary result is that the household effect (i.e. having one or more recipients in the household) is very insignificant in the 2008 estimate. But in the 2012 estimate it is very significant.

### 1.3 Data

In this paper I use data from two sources. The first is the South African National Income Dynamics Survey and the second is the World Health Organization's Child Growth Standards Child Growth Standards.

The main source of data is the NIDS. This survey collects data on a representative set of approximately 10,000 South African households. The primary information types I use are, the child anthropometrics, the age and gender of household members, and the status as state pension recipients.

For adults several variables measure the different amounts and sources of income. Among those, a variable if the adult receives a state pension, and if so, how much. This is a numeric variable, the values of which lie very close together. For simplicity I have temporarily used this variable as a dummy.

Children's anthropometrics are taken, these are length/height, weight, and waist. Using these anthropometrics and WHO growth standards, z-scores have been calculated. Unfortunately wave 2 (2012) accidentally omitted the z-scores, so that these cannot be evaluated until an updated version is published. However, I have computed the length-for-age z-scores manually.

In 2006 the WHO published its standards for child growth Child Growth Standards. These standards are based on the scores of children from different ethnic populations in households which observed a healthy lifestyle. The standards provide the means and standards deviations used. These are on a monthly basis for height-for-age, and on a semi-centimeter level for weight-for-height scores.

```
{r, include=FALSE} load("w1w2.RData") library(sem) library(ggplot2)
{r} p1 <- ggplot(subset(w1_child, w1_woman.60 == 1), aes(w1_c_age_m,
w1_zhfa, colour=factor(w1_c_woman))) p1 + stat_smooth(method="loess")#
+ geom_point()
```

## 1.4 Results

Basic HAZ (2008).  $\{r\}$  `summary(w1_haz0)`

HAZ 2008, with 2012 eligibility as an IV  $\{r\}$  `summary(tsls_w1w2_haz0)`

HAZ 2008, with 2012 eligibility as an IV (men over 65 only)  $\{r\}$  `summary(tsls_w1w2_haz1)`