

Educational and Health Impact of Two School Feeding Schemes in Burkina Faso

Damien de Walque

Harounan Kazianga

Harold Alderman

1 Introduction

This paper reports the impact on educational and health outcomes of two school feeding schemes in the Sahel region of northern Burkina Faso: school canteens and take home rations. School canteens provide meals to the students attending school, and they have been in place for a long period in Burkina Faso. There exists large empirical evidence showing that providing meals at school promote school participation. Take home rations are a more recent intervention (also initiated by CRS/Cathwell) whereby students who attend school on a regular basis (at least 90% of school days) receive a food ration (in general 8 kg of cereal flour). In that sense take home rations are to some extent akin to in kind conditional cash transfers.

The study covers the Sahel region of northern Burkina Faso, where on average 20 percent of school age children (6 to 16 years old) attend school, based on both recent national surveys (e. g. the Demographic and health survey) and our own data. It is apparent that the region is lagging, even by national standards (school participation was about 30 percent in rural Bukina Faso based on the 2003 DHS). Therefore, identifying an intervention which is cost effective in increasing educational outcomes will have a significant policy implication.

In addition to school participation, we focus on two aspects of school feeding programs which are less documented: the impact on cognitive achievement and child health. Specifically, we ask to what extent increased school participation, if any, translates into increased cognitive ability, and to what extent participation into a school feeding program improves the health status of a child and/or the health status of other household members. For instance, household could decide to reduce the rations of their children who attend school if they know that meals are provided at school. Likewise, there is no evidence that the take home rations are effectively used in feeding the child who attends school any child.

2 Research Design and Data Collection

A total of 64 newly open schools were randomly allocated to two treatment groups (school canteens and take home rations) and to a control groups. A baseline survey took place in June 2006. The interventions per se, which are carried out by the World Food Program, started in October 2006 and continued through the academic year which ended in mid June 2007. A follow up survey took place June 2007.

We surveyed a random sample of 48 households around each school, making a total of 3200 households, with a total of about 6000 school age children. We collected information on household backgrounds, household wealth, school participation for all children, and anthropometric data. In

both rounds of the survey, all school age children were asked to solve simple mathematical operations (addition, subtraction, multiplication and division). In the second round we administered formal cognitive tests (Raven and Wisc tests). In addition hemoglobin levels were taken for all children below 16 and all women of reproductive age (between 15 and 49).

3 Preliminary Results and future extensions

We summarize our preliminary results, mean comparison, in four points. First, school participation (in terms of enrollment) increased only marginally in both treatment groups, relative to control villages. Second, attendance rates increased more in the take home rations, relative to control villages and to villages which were receiving school meals. Third, there is no indication that the score on the basic mathematical operations varied over time or across treatment groups. Fourth, there are marginal gains in hemoglobin levels in villages assigned to take home rations.

The next step in this exercise (that we will present at the conference) will consist in using a difference in difference to attribute to the program differences between households in treatment and control villages in key outcome indicators (enrollment rates, attendance rates, achievement tests, child health status). Furthermore, the availability of a baseline data and the panel dimension of the data can be used to control for initial differences between the treatment and control groups using a difference-in-differences (DID) model. The following equation is estimated to find the average treatment effects.

$$y_i = \beta_0 + \beta_1 T_i + \beta_2 X_i + \beta_3 Z_i + \mu_i$$

where y_i is the outcome of interest measured at the child level, T_i is the treatment indicator, X_i is a vector of child characteristics (e.g. gender, age, birth order) and household characteristics (e.g. wealth level and composition, parent literacy, household shocks) and Z_i is a vector of village level characteristics (e.g. village infrastructure, school location, school quality). The direct impact of the treatment program on the treated households, or ATE, is measured by β_1 .