What can we learn from babies born during health-worker strikes?
September 2015
EXTENDED ABSTRACT, submitted for PAA
Willa Friedman (willa.friedman@gmail.com)
Anthony Keats (anthonykeats@gmail.com)

Abstract

We study what happens when children are born during health-worker strikes in sub-Saharan Africa. We create a retrospective panel of births using Demographic and Health Surveys and link this with a new database of health-worker strikes based on digital archives of newspapers from sub-Saharan Africa. The timing of health-worker strikes is plausibly exogenous with respect to women’s fertility decisions. Comparing outcomes of births in the months just before, during, and just after strikes allows us to control for variation in unobservable factors across time and place to identify the impacts of health-worker strikes. In addition to estimating the impacts of the strikes themselves, this will also provide insights about the benefit - or lack thereof - of access to different types of health facilities in improving maternal and child outcomes. Preliminary results based on limited data on strikes show that babies born during health-worker strikes are less likely to survive, less likely to have been born in a facility, and survivors are smaller.

1 Introduction

In the last few years, a few prominent health-worker strikes in sub-Saharan Africa garnered broad media attention, highlighting situations in which health-workers were not paid or insufficiently paid or otherwise not given the resources they asked for to provide health services. This paper will use these instances of limited health-service availability to study the benefits of health-service availability on maternal and infant health outcomes. The idea that health-worker strikes could have devastating consequences on the health of individuals seeking services has been popular with the media. Recent headlines in newspapers from sub-Saharan Africa include:

- “GABON: Health workers strike ‘has cost lives’,” April 9, 2009, IRIN, Gabon.

The impact of strikes on health outcomes is not obvious. Health care access should improve health outcomes. However, there are also risks associated with delivering in facilities, particularly those with limited resources. Therefore, one could imagine that the impacts of access to facilities varies dramatically, and in some areas, it could even be negative.

Our paper will follow previous work using strikes as an exogenous source of variation in service provision. For example, Luallen (2006) uses teacher strikes to measure the impact of forcing students to be in school on subsequent criminal activity. This is also similar to other work that uses other sources of variation in
access to health facilities to identify the impact of health-service provision. For example, Mwaliko et al. (2014) show that women who are farther from a health facility in Kenya are more likely to deliver at home.

This paper will estimate the impact of health-worker strikes on where women deliver children, who is present, and what health-related outcomes are associated with these behavior choices. We combine survey data regarding the experiences and outcomes of delivery among a large sample of women from six sub-Saharan African countries (from DHS) with a record of the timing of health-worker strikes in each of these countries.

This paper will make two primary contributions. First, it sheds light on the impacts of health-worker strikes, an important phenomenon in many countries. Second, it investigates the impacts of access to health services at the time of deliveries, by looking at what happens when these services are temporarily unavailable.

2  Data

The data for this paper comes from two sources, which can be linked by country and month. The authors are compiling a database of strikes recorded in local newspapers, supplementing those listed in the Social Conflict in Africa Database (SCAD), which lists strikes reported in international media. This database includes information about who was striking, and the timing and location of the strikes.

The Social Conflict in Africa Database (Salehyan et al. (2012)) records international reports of strikes, which is the best existing record of labor strikes. Still, it is missing large strikes in some countries. To address this, we are supplementing this record with articles from the African News Search Engine, available through New College - University of Toronto, which searches through 255 publications from sub-Saharan Africa. We will include all strikes in which health-workers are reported as the primary actor. For each strike, SCAD lists the start of the strike and the duration within each month. From this, we have constructed a database of all months between 1990 and 2012 and the number of days within each month in which there was a health-worker strike in each country. For 91% of the health-worker strikes in the SCAD data, the issue is listed as “economy, jobs.” The rest are “food, water, subsistence” and “other.” To our knowledge, we are the first to use this data to look at the impact of health-worker strikes.

Demographic and Health Surveys are population surveys conducted all over the developing world. Survey respondents report extensive details of their fertility histories, including the timing of all previous births, the behavior of the mother, services sought both before and after the birth, and initial and long-term health outcomes of the children. This information is collected for all children born in the previous 5 years to the DHS’s nationally representative sample of women ages 15–49. A few questions are asked of all previous births, including whether the child is still alive.

Using the timing of these births, we can construct a retrospective panel of births, which we link with the strikes data. For each birth reported in the DHS, we know whether there was a health-worker strike in that country during the month of the birth, and during the previous months. We also know the duration of the strike. All DHS surveys in countries with at least one health-worker strike in the five-years before the survey will be included.

---

We do not know the exact timing within the month of the birth, and so our measure of having experienced a strike will be over-stated, which may bias our estimates of the impacts of strikes toward zero.
The primary outcomes to reflect health impacts of children born in times of limited access to health facilities and personnel will be whether the child is still alive, whether the child died in the first month, and whether the child has had subsequent health problems. To estimate an impact of health-worker strikes on maternal mortality, we will use the DHS records of sibling mortality. Given the many potential causes of adult mortality, it will be unlikely that we will be able to pick this up. However, given the large sample, it will be possible to obtain reasonably precise measures and therefore to estimate even small impacts.

In order to estimate how strikes change women’s health-seeking behavior and the services that they are able to offer, we will look at impacts of strikes on where a woman delivers (in a public or private facility or at home) and who is present (a doctor or a nurse or no trained medical personnel). All of these are based on questions asked of all respondents for all births in the five years before the survey. We will also estimate impacts on the likelihood of delivering via caesarian section.

3 Empirical Strategy

The identification strategy compares babies born during health-worker strikes with babies born in the same countries, during the same years, but not during health-worker strikes. The validity of this strategy relies on the assumption that the timing of a birth with respect to the timing of a strike is exogenous. The fact that conception occurs 9 months before the birth makes this a reasonable assumption. We will compare demographic characteristics of women giving birth just before and after strikes with those giving birth in the same month as strikes to confirm the validity of this assumption.

The key assumption for this identification strategy is that the timing of delivery is exogenous with respect to the timing of the strike. It has been shown in developed countries that women do have some control over the timing of deliveries and respond to tax incentives Dickert-Conlin and Chandra (1999); Gans and Leigh (2009); Milligan (2005), but we don’t believe that this should be a concern in this context. In most developing countries, inductions and cesarean sections are far less common than in the developed world. Also, while women can change the timing within a few days, it is unlikely that women can or would want to change the timing by a larger amount to avoid the strike. Finally, we can test whether women are more or less likely to give birth when there are strikes to see to what degree women are changing the timing of delivery in response to strikes.

The panel data structure which allows time and location fixed effects allows us to control for time-invariant location specific factors and time-varying factors, which are not place specific. This should eliminate many fears of bias from omitted variables. We will estimate the following equation:

\[ Y_{jcym} = \beta_1 \times \text{strike}_{jym} + \alpha_y + \delta_m + \gamma_j + \eta_c + \epsilon_{jcym} \]

\(Y_{jcym}\) is the outcome variable for a birth that occurs in country, \(j\), in survey cluster, \(c\), during year \(y\), and month, \(m\). The coefficient of interest is \(\beta_1\) and \(\text{strike}_{jym}\) is a dummy variable for whether or not there was a strike in country \(j\) during the birth month. The birth month is represented by the year, \(y\), and the calendar month, \(m\). Survey cluster fixed effects are represented by \(\eta_c\).

Additional specifications will include mother fixed-effects. This will compare outcomes as a function of a strike, removing any time-invariant variation in mother’s unobservable characteristics.

The DHS data also includes information about siblings, their mortality, and in the case of sisters -
whether a death happened while she was pregnant or while giving birth. This will make it possible to look at maternal mortality as a function of childbirth during strikes.

In some cases, strikes happen in just one area of the country - for example, Abia State - or even in just one city - for example, Lusaka. These strikes should not be expected to change the experiences of women delivering children in other areas. We will be able to use the geographic information in the DHS data to create a more precise measure of whether a woman has experienced a strike.

Finally, in some specifications we will restrict the sample to women who are more likely to be effected by a health-worker strike - those who are most likely to use the services of a public facility. This will be done by restricting the sample to 1) only those in urban areas, or 2) only those in survey clusters in which at least one other woman (or a sufficient fraction of other women) report having given birth in a public facility.

4 Expected Results

Preliminary analysis based on only the strikes recorded in SCAD show a statistically significant decrease in survival among children born during health-worker strikes relative to those born just before or after. We also see that these births were less likely to have taken place in a formal health facility, and less likely to have been attended by a nurse or physician. Among survivors, we find smaller height-for-age of those born during strikes. We will also look at whether early-life inputs were different (e.g.: vaccinations, breast-feeding assistance, etc.) during health-worker strikes.

References


Mwaliko, Emily, Raymond Downing, Wendy OMeara, Dinah Chelagat, Andrew Obala, Timothy Downing, Chrispinus Simiyu, David Odhiambo, Paul Ayuo, Diana Menya et al.. “Not too far to walk”: the influence of distance on place of delivery in a western Kenya health demographic surveillance system,” BMC Health Services Research, 2014, 14 (1), 1–9.