

Summary of the Dissertation

**ACCESS TO HEALTH FACILITIES AND MATERNAL HEALTH:
A TALE OF TWO COUNTRIES IN EAST AFRICA**

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Maternal mortality and morbidity pose a substantial health burden in developing countries. Over 200,000 mothers die annually due to pregnancy complications mainly in the Sub-Saharan Africa and East Asia (WHO, 2014). Empirical evidence indicates that poor health is a major constraint for economic development and for individuals to realize their full potential (Bleakley, 2010, The World Bank, 1993).

Although historically high maternal mortality was a global phenomena, a group of European countries and Japan experienced a significant decline in maternal mortality by the late 19th century. Experts on public health evidence attribute the low mortality levels in these countries (and the sharp decline in the 1930s in all industrialized countries) to improvements in access to maternal care services as well as quality of obstetric care (De Brouwere et al., 1998, Högberg, 2004). Borrowing from the experience in these countries, the Safe Motherhood Initiative which began in late 1980s seeks to improve the reproductive health of women in developing countries. Improving access to maternal care is among the central strategies of the initiative.

This dissertation represents one of the initial attempts to examine the impact of improving access to health services on utilization of maternal care and health outcomes.

Majority of existing studies point to positive statistical association between availability of health services and use of maternal care (Abbas and Walker, 1986, Do, 2009, Gage and Calixte, 2006, Hazarika, 2011). Three studies attempted to establish a causal relationships (Admassie et al., 2009, Frankenberg et al., 2009, Selamawit, 2013, Valente, 2014). The general take-away from these studies is that improving access to health facilities has little impact on use of maternal care, especially delivery care. For instance Frankenberg et al. (2009) investigates the impact of the Indonesian midwifery program which led to a significant improvement in access to midwifery services in rural Indonesia. The program led to a marginally significant increase in use of skilled birth attendants. The studies by Admassie et al. (2009), Selamawit (2013) which looked at the impacts of the health facility construction program in Ethiopia did not find any impacts on use of maternal care.

This dissertation offers the following contributions to the literature. First it extends the literature on access and use of maternal care by providing rigorous evidence of the impact of access on maternal care use in the lines of (Admassie et al., 2009, Frankenberg et al., 2009, Valente, 2014). Moreover, to my knowledge, this is the first attempt to employ the individual-level longitudinal data to provide evidence on the relationship between access and maternal care in the Sub-Saharan. This data allows controlling for unobserved individual heterogeneity, and hence it is more appealing than the longitudinal data at a more aggregate level (i.e. community level) used in the literature. Lastly, unlike existing studies which examine the short/medium term variation in access improvement, the data used in this paper allows exploiting long term variations of up to a decade.

To examine the impact of access I use data from Uganda and Ethiopia, two countries in the East Africa region. Both countries have high maternal mortality ratios (MMR) although the MMR in Ethiopia (673 per 100,000 live births) is much higher and among the highest in the World. Although the two countries are situated in the same region, they

have markedly different level of maternal care use (CSA and ICF International, 2012, UBOS and ICF International, 2012). Less than half of pregnant women use antenatal care at least once in Ethiopia compared to 90 percent in Uganda. Only 10 percent of the women use skilled care during delivery in Ethiopia while in Uganda it is more than half. To increase use of health care, and particularly maternal care, both countries initiated ambitious programs to improve physical access to health facilities in the early 2000s. In Uganda, the number of facilities that provide maternal care increased by more than 70 percent between 2002 and 2012. In Ethiopia the number of health posts more than doubled between 2004 and 2014. The number of Health Extension Workers (HEW) deployed increased 12 times reaching 34,000 by 2014.

Data comes from the Research on Poverty, Environment and Agricultural Technologies (RePEAT) surveys which covered about 940 and 1358 households Uganda and Ethiopia respectively. I also use the health facility inventory data of the Ministry of Health to capture availability of health services in Uganda. The main challenge of identifying the impacts is that the placement of the facilities is likely to be influenced by unobservable factors that are correlated with usage of health care. These may include prevailing health status of the communities or health consciousness of the political leadership. To estimate the impact of access to health facilities I employ the mother fixed and location/community fixed effect models which control for time invariant unobserved factors at individual and community level respectively. Where data allows, I conduct a number of robustness checks such as the parallel trends assumption. A dynamic panel model is also estimated to examine and control for any effect of past birth experience with maternal care use.

The findings indicate that the program in Uganda was effective in improving the use of maternal care while that of Ethiopia had limited impacts. In Uganda, deliveries at the facility by skilled practitioners increase by 18 percent for each additional higher level facility that

was opened. The proportion of infants weighed at birth increased supporting the finding that utilization of facilities for delivery increased. The improvement in access to the care was associated with reduction of travel time for antenatal care and transportation fees. Access improvement was also associated with reduction in the cases of pregnancy complication at births. In Ethiopia on the other hand, the findings suggest that the program improved use of antenatal care but had no impact on use of delivery or postnatal care. An additional facility led to about 23 percent increase in the proportion of mothers who make the recommended four antenatal care visits. No impact was found on reduction of pregnancy complications.

Despite the fact that the two programs led to a substantial improvement in access to health services, the impacts on maternal care use were strikingly different. In the conclusion of this dissertation I provide some suggestive evidence from the Demographic Health Survey's (DHS) of the two countries which indicate that, while distance is considered a key barrier to use of maternal care in Uganda, the barrier in Ethiopia may lie on the traditions and customs of giving birth. Basing on the evidence from similar context, there is potential for improving the effectiveness of the program in Ethiopia by offering small financial incentives and education (Basinga et al., 2011, World Bank Group, 2013). Both countries could maintain the quality of the care in the facilities by instituting community monitoring schemes (Björkman and Svensson, 2009).