Journal of Development Economics 107 (2014) 305–319

Contents lists available at ScienceDirect

Journal of Development Economics

journal homepage: www.elsevier.com/locate/devec

# Who benefits from free healthcare? Evidence from a randomized experiment in Ghana ☆

Timothy Powell-Jackson [a,*], Kara Hanson [a], Christopher J.M. Whitty [a], Evelyn K. Ansah [b]

[a] London School of Hygiene and Tropical Medicine, UK
[b] Research and Development Division, Ghana Health Service, Ghana

ARTICLE INFO

*Article history:*
Received 10 May 2012
Received in revised form 4 November 2013
Accepted 29 November 2013

*JEL classification:*
D12
I10
I18
I31

*Keywords:*
User fee removal
Healthcare subsidies
Ghana
Randomized experiment

ABSTRACT

We examine the impact of removing user fees for healthcare in rural Ghana using data from a randomized experiment that includes rich information on objective measures of child health status. We find that free care increased use of formal healthcare shifting care seeking away from informal providers, with particularly strong effects for children who were anaemic at baseline. There was no health effect on the intervention population taken overall. However, consistent with the utilization findings, there were health improvements amongst those with anaemia initially. Further benefits included a large reduction in health spending, with the effect greater at higher levels of the medical spending distribution. Free care was found to have no influence on a range of malaria prevention behaviours or on the incidence of self-reported illness, suggesting that ex-ante moral hazard is unlikely to be a concern in this particular setting.



## 1. Introduction

The debate over whether governments in the developing world should charge user fees for healthcare has received considerable attention for several decades. In policy circles and in the academic literature the issue has ignited passions on both sides of the argument. When government health budgets were shrinking in the late 1980s, user fees were proposed as a means to raise much needed revenue and to discourage unnecessary use of health services. Recent years have witnessed a hardening against this position and a reversal of policy in a growing number of countries in Africa (Commission for Africa, 2005; Gilson and McIntyre, 2005).[1] The emerging consensus is that "not only do [user fees] deter people from using health services and cause financial stress, they also cause inefficiency and inequity in the way resources are used" (World Health Organization, 2010). Alternatives to user fees – that provide financial protection through tax financing or subsidised health insurance – are regarded as a central pillar in the strategy to improve access to health services.

Despite the contentious nature of the debate and the extent of the literature, it is striking how little rigorous evidence there is on the impact of removing direct payments for healthcare or introducing health insurance. A recent systematic literature review on user fees, for example, identified over two hundred papers of potential relevance, reduced to just 16 when standard inclusion criteria were applied (Lagarde and Palmer, 2008). The authors noted that "only one study was found to be of good quality [and] even studies that have been highly influential and often quoted failed the quality appraisal." Another notable gap is the evidence of the impact of fee removal on health outcomes. By focusing only on health seeking behaviour, most studies are predicated on the strong assumption that an increase in healthcare use leads to improved health.

This paper examines the effect of removing user fees for healthcare on children using data from a study in southern Ghana. Our empirical investigation complements and extends an earlier paper that presented the initial results of the study (Ansah et al., 2009). It found that free care increased utilization of formal primary care but did not lead to health improvements in the population under study as a whole.

☆ We are grateful for comments from conference participants at Oxford University and Bristol University. We thank three anonymous referees and the Editor for their extremely helpful comments. Ethical approval for this study was obtained from the ethical review board of the Ghana Health Service and the London School of Hygiene and Tropical Medicine. We acknowledge the Gates Foundation for financial support. The usual disclaimer applies.

* Corresponding author at: London School of Hygiene and Tropical Medicine, 15-17 Tavistock Place, London, WC1H 9SH, UK. Tel.: +44 20 7612 7887.
*E-mail address:* Timothy.Powell-Jackson@lshtm.ac.uk (T. Powell-Jackson).

[1] Yates (2009) identifies 13 African countries that have removed user fees in the past few decades. We know of several countries that were not on this list or have since introduced free healthcare.

0304-3878/$ – see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.jdeveco.2013.11.010

The objectives of this paper are threefold. First, on the basis that the impact of free care on health status in the general population is likely to be small and thus difficult to detect, we give particular attention to children in the population that had relatively poor health at baseline. Second, we present evidence on the effect of free care on measures of financial strain. Third, we test for ex-ante moral hazard by examining the effect of free healthcare on a set of preventive behaviours.

The removal of user fees is anticipated to improve health status primarily through increases in the quantity or a shift towards quality healthcare. However, if behavioural responses are limited to those who are initially healthy and for whom the marginal benefit of healthcare is low, health benefits may not materialise. Indeed, the prospect that removing user fees stimulates only frivolous use has been one of the central arguments voiced against the policy because it suggests a channel through which free care will fail to improve health (Akin et al., 1987).[2] Predictions as to the effect of free care are further obscured by the possibility that lower prices for curative care discourage investment in preventive and healthy lifestyle behaviours.

We shed light on these issues using experimental data from Ghana. In 2005, when user fees were the default policy in the public sector, households in one district were randomly assigned either to an existing prepayment health insurance scheme for which the study paid for enrolment, or a control group. Our analysis exploits several unusual features of the data and the study setting. First, we have baseline data on a range of health measures that provide an objective basis with which to determine initial health status. We single out anaemia at baseline as the most salient measure of initial health status given the study setting. Anaemia is a multi-factorial, broad-based measure of child health status. It is a sensitive measure of malaria over time because it reflects multiple infections, particularly appropriate in a context where malaria is the leading cause of morbidity and mortality amongst children under five years of age. Second, the study collected extensive data on malaria-related preventive behaviours, providing the opportunity to test for ex-ante moral hazard. A third advantage is the prior introduction in the study site of an artemisinin-combination therapy (ACT), an antimalarial drug that was shown in the course of the study to be effective and widely used by providers. This means that we can be confident that drug quality was adequate to generate potential health benefits.

We find that removing direct payments for healthcare in the public sector increased the use of primary care clinics, with effects particularly strong for children with anaemia at baseline. By contrast, free care had no effect on the care seeking behaviour of children without anaemia at baseline. While we find no health gains for initially healthier children or for the population under study overall,[3] there is a positive impact on haemoglobin for those with anaemia at baseline. Further benefits include a large reduction in out-of-pocket health spending, particularly at higher levels of the medical spending distribution. Finally, free care is found to have no effect on a range of malaria prevention behaviours or on the incidence of self-reported illness, suggesting that ex-ante moral hazard is unlikely to be a concern in this particular setting.

The effect of the intervention may have operated through several channels. The increase in utilization was the result of a shift from informal providers to formal providers rather than an increase in the total quantity of services. Access to better quality of care and more effective drugs are likely to have raised haemoglobin levels. Evidence on whether there was an indirect effect, whereby free care increased non-health consumption and improved dietary intake, is far from conclusive. It is impossible to be certain whether these results will generalise to other contexts, particularly given the lack of comparable research exploring the impact of health financing schemes on individuals with poor health, and thus further studies with ambitious research designs will be needed to complement these findings. Though we find benefits in removing user fees, an important caveat is that its cost-effectiveness as a policy remains unclear.

Our paper contributes to several strands of the literature. First, health economists have long been interested in the impact of healthcare subsidies and other forms of financial protection on health-related outcomes. Despite the extensive literature, credible evidence remains limited in developing countries. With the exception of two randomized experiments in Mexico (King et al., 2009) and Nicaragua (Thornton et al., 2010), few studies have isolated the causal effect of insurance or abolishing user fees from other confounding factors.[4] Second, most evaluations, experimental or otherwise, are confined to measuring utilization and out-of-pocket healthcare spending as an outcome of interest. There is remarkably little empirical research in developing countries on the health benefits of removing direct payments for healthcare or health insurance. A key contribution of this paper is to study a range of outcomes, thereby providing a comprehensive assessment of the benefits (health and consumption smoothing) and costs (healthcare utilization) of removing user fees. Third, we provide experimental evidence on ex-ante moral hazard that contradicts findings from a non-experimental study conducted in a very similar setting to ours (Yilma et al., 2012).

In one important respect, the closest antecedent to our paper is a study of the impact of Medicare on mortality (Card et al., 2009). Recognising that few studies of health insurance have been able to show health benefits, they focus on a group of severely ill patients and find that the discontinuity in Medicare as the primary insurer at age 65 corresponds with a fall in mortality. In a similar vein, we focus on children who had relatively poor health before the removal of user fees and find significant benefits for those with anaemia at baseline. Second, we connect to a closely related but distinct literature on the role of price in influencing the uptake of healthcare. Field experiments – on bednets (Cohen and Dupas, 2010), home water purification (Ashraf et al., 2010), deworming drugs (Kremer and Miguel, 2007) and HIV testing (Thornton, 2008) – have found that price is an important determinant of use in developing countries.[5] These papers focus on health products or diagnostic tests, whereas our study is concerned with a system-wide health financing reform. The removal of user fees as an intervention introduces additional complexities – such as quality of care, supply-side incentives, and the timing of care seeking – that require explicit recognition and discussion in our study.

The paper is structured as follows. Section 2 provides an overview of the free care study in southern Ghana, including its experimental design. Section 3 describes the data and Section 4 the empirical methods. Section 5 presents the main findings of the analysis. Section 6 considers the potential channels for the effect of free care and discusses the implications of the findings.

[2] Economists have long emphasised the problem of ex post moral hazard in the standard model of health insurance, regarding any increase in demand for healthcare under insurance as a source of inefficiency (Pauly, 1968). Because insured individuals face only a fraction of the full cost of medical care, they have inefficient incentives to consume a larger than optimal quantity of services (Arrow, 1963; Pauly, 1968). The welfare loss due to moral hazard, however, is likely to be overstated for at least three reasons (Newhouse, 2002). First, there are gains from avoiding the risk of financial loss (Gertler and Gruber, 2002; Zeckhauser, 1970). Second, there may be positive externalities associated with healthcare, particularly in the case of preventive services, such that healthcare use absent health insurance is inefficiently low (Culyer and Simpson, 1980). Third, health insurance allows individuals to access care that they would otherwise not have been able to afford (Nyman, 1999). This is particularly true when healthcare spending is large relative to income (Pauly, 1983).

[3] This is not to say that the population of initially healthy children will not benefit at a future point in time when they fall ill. We recognise that being ill or healthy is typically not a permanent state.

[4] An older literature on user fees exploits non-experimental methods to identify the effect of price on healthcare use. The most rigorous of these includes one study in Peru (Gertler et al., 1987) and another in Cote d'Ivoire (Dor et al., 1987).

[5] More precisely, two of these studies sought to disentangle the effect of price on purchase and use of health products using a two-stage pricing strategy (Ashraf et al., 2010; Cohen and Dupas, 2010).