Impact of Health Financing Policies on Household Spending: Evidence from Cambodia Socio-Economic Surveys 2004 and 2009

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Acronyms

CBHI	Community-based health insurance
CDRI	Cambodia Development Resource Institute
CSES	Cambodia Socio-Economic Survey
DFID	Department for International Development, UK
GDP	Gross domestic product
HEF	Health equity funds
GLM	Generalized linear model
IDPoor	Identification of Poor Households Programme
KHR	Cambodian riel
MEF	Ministry of Economy and Finance
MOH	Ministry of Health
NGO	Non-governmental organisation
OLS	Ordinary least squares
PCA	Principal component analysis
ReBUILD	Research for Building Pro-poor Health Systems during Recovery from Conflict
UF	User fees
UK	United Kingdom
UNTAC	United Nations Transitory Authority in Cambodia

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Abstract

We use the 2004 and 2009 Cambodia Socio-Economic Surveys to measure the impact of user fees, health equity funds, the government health subsidy scheme, vouchers and various combinations of these policies on household health spending. Employing a difference-in-differences estimator and a two part model, we find that health equity funds and vouchers help to reduce household health spending whereas user fees and the government health subsidy scheme are unlikely to reduce household health spending as was originally designed. Continuation and expansion of health equity funds and voucher schemes is definitely crucial for Cambodia. The results also highlight the need for further policy-relevant research to improve the effectiveness of user fees and the government health subsidy scheme.

Key words: household health expenditure, user fees, health equity funds, difference-in-differences, two-part model.

1. Introduction

The signing of the Paris Peace Agreements on 23 October 1991 officially marked the end of the civil war that lasted more than twenty years in Cambodia. The Agreement allowed the United Nations to oversee the country's political and economic management from 1991 until 1993. Under the direct supervision of the United Nations Transitory Authority in Cambodia (UNTAC), the first general election was held in May 1993. However, factional fighting broke out in July 1997, leading to high tension between the ruling party and main opposition party. With the surrendering of the last remnants of the Khmer Rouge, the general election in July 1998 finally brought peace and stability to Cambodia.

The health system has been gradually restored. Before the first general election, healthcare was officially provided free of charge for all patients at public health facilities. In 1996-97, health sector funding accounted for 12 to 13 percent of GDP—the largest share among Asian developing countries (Bitran et al. 2003). Even so, at 0.3 annual contacts per capita, public health service utilisation was still extremely low (MOH 1999). This was mainly due to the low official salaries of public service providers and insufficient budget to cover the running costs of service delivery (Jacobs and Price 2004).[1] At the time, out-of-pocket spending played the largest role in health sector financing—amounting to 82 to 84 percent of the total, followed by official development assistance 8 to 12 percent, the government 4 to 5 percent and NGOs 2 to 3 percent (Bitran et al. 2003).

To formalise cost recovery in the form of user fees (UF), the Ministry of Health (MOH) introduced the National Charter on Health Financing in 1996, authorising public health facilities to collect UF from all patients except the poorest. This initiative had three goals: "to reduce the unofficial charges and household out-of-pocket expenditures, to improve the quality of care through increased and timely availability of medical supplies, and to motivate staff through performance-related payment funded by fees" (Bitran et al. 2003, 2). To achieve these goals, the government allocated 49 percent of UF revenues for health facility staff salaries, 50 percent for non-salary operating costs and 1 percent for the National Treasury.

Cognisant of the ineffectiveness of the UF exemption programme and the financial burden of rising out-of-pocket medical expenses, since the early 2000s, the government and its development partners have continued to introduce various approaches including health equity funds (HEF), community-based health insurance (CBHI), vouchers (VO) and social health insurance.

Since health sector reform started in 1996, several studies have attempted to assess the effects of UF on health service access (Wilkinson, Holloway and Fallavier 2001; Barber, Bonnet and Bekedam 2004; Jacobs and Price 2004; Hardeman et al. 2004; Meessen and Van Damme 2004; Meessen et al. 2006; Jacobs and Price 2008; Khun and Manderson 2008), equity (Wilkinson, Holloway and Fallavier 2001), out-of-pocket spending (Barber, Bonnet and Bekedam 2004), health facility performance (Wilkinson, Holloway and Fallavier 2001; Akashi et al. 2004; Barber, Bonnet and Bekedam (2004) and health service provider attitudes (Akashi et al. 2004). These studies found both positive and negative effects of UF.

1 In the late 1990s, Cambodian government officials received a monthly salary of approximately USD15. However, the monthly living cost for an average family of five in Phnom Penh was USD200 to USD300 (MOP 1997). This evidence suggests that government officials including public health professionals were unable to rely on their salary alone to support their family. To make a minimum living, they had to seek additional income in the private sector and/or demand unofficial payments from patients.

Other studies examine the impact of HEF on the utilisation of public health facilities by the poor (Hardeman 2001; Hardeman et al. 2004; Annear et al. 2006; Men and van Pelt 2006; Biacabe 2008; Criel et al. 2008), household health expenditure (Ir 2004, 2008; Van Damme et. al. 2004; van Pelt 2006), impoverishment and indebtedness (van Pelt 2006; Men and van Pelt 2006; Ir 2008; van Pelt 2008; MOH 2009), the quality of health services (Nguyen 2004; van Pelt 2006; Ir 2008; van Pelt 2008), healthcare-seeking behaviour (Van Damme et al. 2004; Annear et al. 2006; Jacobs and Lot 2006; Jacobs and Price 2006, 2008; Keller, Thome and Dekestier 2008) and other implementation arrangements including targeting of the poor (Hardeman et al. 2004) and attitudinal changes of health facility staff towards the poor (Nguyen 2004; Jacobs and Lot 2006; Annear et al. 2006, 2008; Ir 2008; van Pelt and Morineau 2008; Jordanwood, van Pelt and Grundmann 2009). The main findings of these studies reveal that HEF have increased the utilisation of public health facilities especially by the poor, reduced out-of-pocket health expenditure, prevented borrowing or selling or pawning of assets for healthcare, improved the quality of health services for the poor, created incentives for staff to treat poor patients as equal to the non-poor, and motivated the poor to use public health facilities. However, as Annear (2010) points out,evidence regarding the impact of HEF on household health expenditure, impoverishment and indebtedness is very limited and incomplete and that on the improvement of the quality of health services for the poor is mixed.

Few studies have focussed on CBHI and voucher schemes. Phoung (2010) examined how CBHI can improve household access to healthcare while Ozawa (2010) looked at household and healthcare providers' behaviours in response to CBHI. Their study findings were not definitive, however. Phoung (2010) also identified a potential link between CBHI and HEF and increased healthcare utilisation. The most recent study conducted by Van de Poel et al. (2013) found that vouchers raise the utilisation of postnatal care and universal vouchers have a significant positive impact on antenatal care.

2. Literature review

A considerable amount of literature has been published on health financing in Cambodia since the health sector reformed in the late 1990s. To assess the impact of the introduction of user fees (UF), Jacobs and Price (2004), using data from Kirivong operational district, compared data before and after introduction of the UF scheme. They found that UF created a "medical poverty trap", though this finding drew on descriptive analysis only. Using hospital data, patient and provider surveys and provider focus group discussions, Akashi et al. (2004) assessed the impact of UF in a public hospital—the National Maternal and Child Health Center—on patient utilisation, revenue and expenditure, quality of hospital services, provider attitudes, low-income patients and the government. The study found that patient satisfaction with the UF system was 92.7 percent and the number of outpatients had doubled. The average monthly number of babies delivered at hospital increased significantly from 319 before the introduction of the system to 585 three years later. Hospital revenues also increased.

Hardeman et al. (2004), using data compiled from September 2000 to September 2002, assessed the impact of HEF on poor households' access to healthcare in Sotnikum operational district, Siem Reap province. They found that HEF improved financial access for the poor, but the poor continued to face many constraints to timely access. Operated by an NGO, the HEF scheme in Sotnikum health district was cost-effective with minimal leakage to the non-poor. Barber, Bonnet and Bekedam (2004), through a case study of Takeo provincial referral hospital, used secondary data to investigate to what extent UF can reduce out-of-pocket spending and promote financial

stability. The study revealed that before UF was introduced, out-of-pocket spending for inpatient admission was USD15 to USD30 (without drugs) even though the official hospital fee was only USD9.30 (with drugs, laboratory and imaging services), implying that the fixed inpatient fee was approximately 65 percent less than under-the-table payments. They concluded, therefore, that UF has significantly reduced out-of-pocket expenses. Ir (2004) used patient surveys conducted in 2000 and 2003 in Sotnikum and six other operational districts (Thma Puok, Svay Rieng, Kirivong, Takeo, Phnom Penh and Siem Reap) to capture the effect of HEF on household health expenditure. The results indicated that out-of-pocket health spending for both HEF beneficiaries and non-beneficiaries dropped substantially between 2000 and 2003; however, the study did not determine to what extent the decline may have been attributable to HEF.

Jacobs and Price (2006) used data compiled from September 2000 to September 2002 to assess the impact of HEF on out-of-pocket health expenditure in Kirivong operational district, and concluded that direct costs associated with seeking care were lower for HEF beneficiaries (USD5.7) than for non-beneficiaries (USD11.3). Annear et al. (2006) looked at contracting, HEF and CBHI and used information collected from 33 health operational districts. They found that all three schemes addressed different barriers to health services access to some extent but could not, even if taken together, overcome all barriers. The analysis indicates that HEF schemes are the most effective for providing increased health coverage for the poor and for the alleviation of poverty. Jacobs, Lewis and Oeun (2007) evaluated the effects of a UF scheme on healthcare-seeking behaviour and out-of-pocket expenditure at Kirivong referral hospital by comparing fee-exempted and fee-paying patients. The study found that the direct costs of seeking healthcare were USD4.3 for fee-exempted patients and USD15.3 for fee-paying patients. Annear et al. (2007) assessed the impact of UF, HEF, CBHI and contracting in Phnom Penh municipality hospital and Angroka operational district using administrative data, survey data and qualitative information. The study concluded that HEF and CBHI (run by SKY health insurance project) reduced treatment costs and improved access to services, but the UF scheme excluded the poor from health services: due to cost, many poor people did not attend health facilities when needed. Khun and Manderson (2008) conducted a case study in two villages to investigate the impact of UF on admission rates for dengue fever. Using quantitative and qualitative data, they concluded that the introduction of UF and limited application of fee exemptions severely affected the utilisation of public health facilities. Costs were often catastrophic, exacerbating the extreme poverty of those least able to afford medical treatment.

Ir re-examined the effectiveness of HEF in four hospitals in Kompong Cham by conducting a bed census in May 2006 (546 observations) and a follow-up bed census in February 2008 (553 observations). From the simple descriptive statistics of the two surveys, he concluded that health expenditure among HEF-eligible inpatients has increased significantly. More recently, Annear (2010, iv), having conducted a comprehensive review of published and unpublished literature on HEF during 2001–10, concludes "There is little direct evidence on the impact of HEF on household health expenditures". Flores et al. (2011) used Cambodian Socio-Economic Surveys (CSES) of 2004, 2007, 2008 and 2009 and the geographic distribution of HEF in Cambodia to identify their impact on out-of-pocket payments. The study found that among households with some out-of-pocket payments, HEF coverage reduces the amount by 29 percent on average. The effect is larger for households that are poorer, mainly use public healthcare services and live closer to a district hospital. HEF schemes are more effective in reducing out-of-pocket payments when they are operated by an NGO rather than the government, and when they operate in conjunction with public health services contracting. HEF coverage reduces household health-related debt by around 25 percent on average.

Given the limited evidence on the effects of health financing policies on household health expenditures, previous studies very likely drew on case studies of referral hospital admissions that used reflexive comparisons without taking household characteristics and other unobserved effects into account.[2] Towards bridging this knowledge gap, our study aims to provide robust evidence on the impact of health financing policies on household health expenditure by using data from CSES 2004 and 2009 and applying advanced econometric methods, i.e. difference-in-differences and two-part model. Importantly, our study intends to measure the combined effects of UF, HEF and VO on household health expenditure. This kind of empirical study is very new in Cambodia.

3. Health financing policies in Cambodia

Cambodia's health system is financed by the government, development partners and private household expenditure. In the early 1990s, there was no formal fee system in public health facilities but informal fees were widely charged; in the case of serious illness, household health expenditure could reach several hundred US dollars. There was no health insurance. During that period, health sector reform mainly focused on generating additional resources through user fees (UF) to supplement the low salaries of public health workers and introducing management reforms used in the private sector into the public health system.

Progress has been made towards the establishment of the 1996 National Health Financing Charter, which authorised the collection of UF at public health facilities for all users, except the poorest, with the expectations of reducing the service cost mainly under-the-table charges, increasing public health services utilisation, improving service quality and boosting staff motivation. As of 2013, the majority of public health facilities were formally implementing UF (MOH 2013). Evidence showed that fixed and official UF not only contributed to increases in the utilisation of public health facilities but also promoted financial sustainability (Barber, Bonnet and Bekedam 2004). However, some studies (e.g. Meessen and van Damme 2004; Jacobs and Price 2008; Health Economic Taskforce 2000) caution that this scheme has often failed to reach the poor; indeed, per capita household health expenditure increased significantly from USD17 in 1993 to USD25 in 2005 (MOH 2008). This finding has raised great concern regarding equitable access to health services in Cambodia.

To address these concerns, a health equity fund (HEF) scheme was introduced by international NGOs in 2000.[3] Primarily designed to provide access to health services and to protect the poor from catastrophic health expenditures (MOH 2008), the HEF benefit package covered part or full costs of medical services, transport, food for patients and carers, and funeral costs (Flores et al. 2011). Assessments showed that HEF improved access to health services for the poor (Hardeman et al. 2004), reduced out-of-pocket spending and household health-related debt (Flores et al. 2011) and increased public health facilities utilisation (Noirhomme et al. 2007). Later studies, however, raised concerns about the long-term sustainability of the HEF scheme (see, for example, Tangcharoensthien et al. 2011). In addition to HEF, the government created its own subsidy scheme (SUBO) for the poor in 2006. The scheme aims to ease financial barriers preventing the poor from accessing and using public health facilities by compensating healthcare providers for the cost of certain health services used by the poor. SUBO is fully financed by the national budget under the MOH (MOH 2013).

2 The reflexive comparison method requires that base line and follow-up surveys be conducted before and after intervention so that impact can be measured by changes in outcome indicators (Ravallion 1999).

3 Health equity fund schemes funded by the World Health Organization and the UK were piloted in Phnom Penh and in two squatter urban areas in 2000 (Annear et al. 2008).

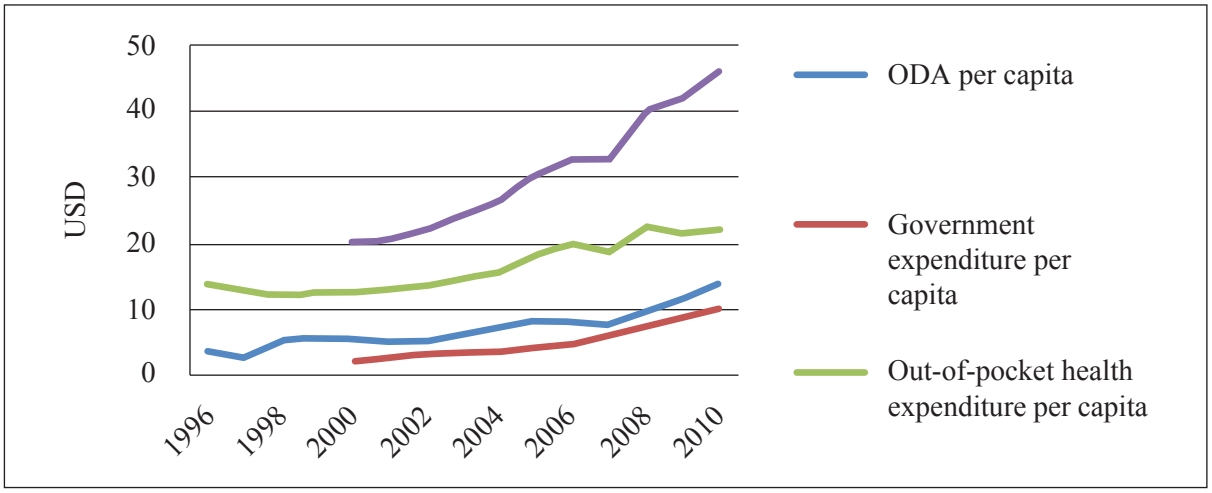
Voluntary community-based health insurance (CBHI) schemes have been introduced to provide further risk pooling. These were initially piloted in four locations in Kandal province in 1998 by a French NGO called Group de Recherche et d'Echanges (GRET) (Annear et al. 2008). They are designed to provide a risk-pooling mechanism for informal sector workers who earn an income above the poverty line (MOH 2008). The impact of these schemes, which have had limited penetration due partly to their voluntary approach, is unclear.

To incentivise the utilisation of maternal healthcare, voucher schemes were introduced in 2007 and currently cover one third of the country (Van De Poel et al. 2013). There are two types of voucher schemes: universal and targeted (the poorest women). A recent study by Vande Poel et al. (2013) reveals that universal schemes have a larger effect on facility delivery than targeted schemes. To provide universal coverage to wage earners employed in the formal sector, a master plan for social health insurance[4] was developed in 2005, though this has yet to be implemented. It is due to start operating in 2015 (Ly 2011).

4. Structure of public spending on health

Health expenditure per capita doubled between 2000 and 2010. Health financing is largely dominated by out-of-pocket spending, followed by development partners and the Cambodian government (Figure 1). Despite low government budget allocation, the share of government spending on health to GDP rose from 0.72 percent in 2000 to about 1.26 percent in 2010 (MEF 2010). Government spending on health is highly centralised. The MOH still controls more than 70 percent of the total expenditure while most of the remaining budget is delegated to provincial governors who have full authority to manage spending on utilities, fuel and other purchases on behalf of the health facilities (World Bank 2011). In addition, a large proportion of government health expenditure is financed by external assistance rather than its own revenues (World Bank 2011). This raises great concerns over the sustainability of public health spending in Cambodia.

Figure 1: Health expenditure per capita, 1996-2010 (current prices)



ODA = overseas development assistance

Sources: MEF 2010, WDI 2013 and authors' calculations

4 Social health insurance consists of compulsory, voluntary and social assistance schemes. Voluntary and social assistance schemes often refer to community-based health insurance and health equity funds, while the compulsory scheme is a newly designed programme to target public officers, private formal sector employees and their dependents (Ly 2011).

5. Data and methodology

5.1 Sample selection

With financial and technical support from various development partners such as the Asian Development Bank (ADB), United Nations Development Programme (UNDP), World Bank, United Nations Children's Fund (UNICEF), International Labour Organization (ILO) and Swedish International Development Cooperation Agency (Sida), the National Institute of Statistics (NIS) has conducted the Cambodia Socio-Economic Survey (CSES) for 10 rounds over the past two decades in 1993/94, 1996, 1997, 1999, 2004, 2007, 2008, 2009, 2010 and 2011. Although nationally representative, these household surveys are unfortunately not fully comparable mainly due to the sampling design and time of implementation (Table 1). Changes to the questionnaire design have also affected the comparability of data. For example, data on 177 food and 266 non-food items was collected in 1993/94, but subsequent surveys collected data on only 19-23 food and 13-14 non-food items; recall method only was used for collecting information on consumption in 1993/94, 1997, 1999, while both recall and diary methods were adopted from 2004 onwards; the household questionnaire used in 2007, 2008, 2010 and 2011 was smaller and covered fewer topics than that used in 2004 and 2009. This means that comparisons between the surveys done before and after 2004 are not recommended.[5]

Taking the sample size, survey and questionnaire design into account, this study uses data collected in 2004 and 2009.[6] However, to some extent, the sampling frames for CSES 2004 and CSES 2009 are different, particularly at village level—CSES 2004 was based on the 1998 Population Census and CSES 2009 on the 2008 Population Census. To reduce the risk of compositional bias, we include only those communes sampled in both 2004 and 2009.[7] In addition, we also exclude those samples collected in November and December 2003 and January 2005[8] from CSES 2004 to ensure that the timing and duration of sampling in the field is equivalent (Table 2).

The UF scheme has been introduced across the country since 1996, followed by CBHI in 1998, HEF in 2000 and vouchers (VO) in 2007. Administrative data[9] released by the MOH indicates that by 2004 UF had been implemented in 21 provinces, CBHI in 2 provinces, HEF in 11 provinces, and VO in just 1 province. By 2009, UF covered all 24 provinces, HEF 23 provinces, CBHI 8 provinces, and VO 5 provinces (Table 3). At commune level, in 2009, approximately 86 percent of the total communes were covered by UF while only 9 percent benefited from CBHI and 23 percent from HEF schemes; at the same time, VO had been extended to 21 percent of communes.

Having integrated health financing policy variables into CSES 2004 and 2009, we note that the start of policy implementation coincided with the date of household interviews in some communes, while other communes were expected to benefit from those policies several months after the survey was conducted. For this reason, we define a household as being covered if

5 The Ministry of Planning (2006, 2012) also highlights that CSES datasets are not entirely comparable largely due to differences in sampling design—even the surveys in 1993/94, 1996, 1997 and 1999.

6 The sample households for CSES 2007 and 2008 formed the subsample of CSES 2004, and those for CSES 2010 and 2011 the subsample of CSES 2009.

7 In principle, we followed the approach used by Flores et al. (2011) but the difference between the two studies is that Flores et al. did not exclude data collected in November and December 2003 and January 2005 from their analysis.

8 Thirty-nine households interviewed in February 2005 are also excluded.

9 Health Financing Policies and Universal Health Coverage data (unpublished) collected by the Bureau of Health Economics and Financing of the Department of Planning and Health Information, Ministry of Health.

those policies had been operating in the commune for at least one month before the interviews started. This approach is to some extent in line with Flores et al. (2011).

With these assumptions, we find that in 2004 the UF scheme most likely covered 3773 households, 70 of which also benefited from CBHI and 320 from HEF. To construct the baseline data from CSES 2004, i.e. households that were not covered by any kind of health financing policy, we exclude those 3773 households from analysis. This reduces the sample size from 6356 households to 2583 households, 710 of which were likely affected by UF from February 2005 onwards, 590 from a policy combination of UF_VO, 190 from UF_HEF, 290 from UF_SUBO, 90 from UF_HEF_VO and 20 from UF_SUBO_VO. Unfortunately, no households were identified as having benefitted from CBHI. We therefore drop the CBHI policy variable from our analysis. To ensure comparability between 2004 and 2009, we also exclude households that in 2009 benefited from UF_CBHI (240 households) and UF_CBHI_HEF (147 households). The final household sample for this study is presented in Table 4. Since the numbers of households benefitting from UF_SUBO_VO were very small, with only 20 for 2004 and 30 for 2009, we drop this combination of schemes from our analysis.

5.2 User fees, health equity funds, vouchers and the poor

Given that the UF scheme is designed to exempt the poor from paying fees while HEF and vouchers target only the poor, it was important to identify the poor and non-poor households so that we could examine the impact of UF on the health expenditure of non-poor households and of HEF and vouchers on poor households.

Along with the structure and components of UF, the MOH also developed exemption criteria. Many studies including Akashi et al. (2004) warn that these exemption criteria are ineffective in identifying the poor due to the unreliability of patients' responses to the exemption questionnaire. Importantly, the UF programme relies completely on the health facility staff identified by the director to make exemption decisions. This approach could favour patients who can pay because a maximum of 49 percent of the total revenue from UF is allocated to supplement the salaries of health facility staff directly (Barber, Bonnet and Bekedam 2004).

HEF and vouchers that involve a third party to identify the poor and pay UF on their behalf have been introduced to complement the weakness of the UF exemption programme (Jacobs and Price 2004; Ir et al. 2010). In the early years of operation, most HEF schemes adopted the post-identification approach—an asset-based means test—to assess eligibility, but the pre-identification approach and consultation with community representatives to identify households eligible for fee exemption has been increasingly adopted. In 2007, the Ministry of Planning standardised the procedure to identify poor households (known as IDPoor) by means testing housing quality,[10] amount of floorspace, agricultural land, fishing equipment, livestock,[11] durable assets,[12] means of transport,[13] dependent family members and associated criteria, as well as the general perception of the village group representatives. The outcome of IDPoor has been utilised by various government and non-government assistance programmes including HEF schemes (Flores et al. 2011).

10 Roofing materials, exterior wall construction materials and general housing conditions.

11 Pigs, cows, buffaloes, goats and horses.

12 Small radio, large radio, stereo, colour television, black and white television, video camera, video player/karaoke, mobile telephone, water pump, thresher , rice mill, generator and battery charger.

13 Bicycle, motorbike, tractor, horse/ox cart, motorbike, remorque, *kou yon*, car/van/truck, rowing boat and motor boat.

Although complete information to replicate the IDPoor means test is not available, following Filmer and Prichett (1994), we constructed an indicator using the wealth index. The majority of the assets used to formulate the index were aggregated into a single variable using principal component analysis (PCA) (see Table 5). Empirically, we applied PCA using asset data from CSES 2004, and used the factor scores of the first principal component to generate the wealth index for both CSES 2004 and 2009. This approach ensures that the weight of each asset remains constant since it is very critical for poverty comparison over time.[14] For this study we define the 1st and 2nd quintiles of the wealth index as poor and the 3rd, 4th and 5th quintiles as non-poor. The differences in approach resultant of data limitations mean that our findings may not be strictly comparable with those of other studies that use the IDPoor score.

5.3 Out-of-pocket spending

In CSES 2004 and 2009, health expenditure for each household member over four weeks was recorded in the Health Section.[15] However, the question on health spending in 2009 was more precise than in 2004. In 2009, spending on transport to health facilities and on health services was recorded separately, while only total health expenditure was available in 2004.[16] Having compared the total health expenditure in 2004 and the spending on transport and health services in 2009, Flores et al. (2011) conclude that the respondents in 2004 may have included the transport cost in total health expenditure. In line with Flores et al. (2011), we define total health expenditure as the aggregate of spending on transport and health services in 2009. Total household health expenditure is divided by household size and adjusted for different price levels in Phnom Penh and other regions over the study period using the consumer price index (Table 6).

5.4 Estimation strategies

We examine the effects of policies (see Table 4 for sampling frame) on household health expenditure using a difference-in-differences (DID) method that compares the change in daily per capita health spending of the control group with the change in daily per capita health spending of the treatment group. This method is widely used to evaluate the effect of programme or policy interventions when panel or repeated cross-sectional data is available (e.g. Card and Krueger 1994). The basic models can be written as follows:

$$Y_i = \beta_0 + \beta_1 t + \beta_2 UF + \beta_3 UF * t + \beta_4 X_i + \beta_5 Z_i + \varepsilon_i \quad (1)$$

$$Y_i = \beta_0 + \beta_1 t + \beta_2 UF\_VO + \beta_3 UF\_VO * t + \beta_4 X_i + \beta_5 Z_i + \varepsilon_i \quad (2)$$

$$Y_i = \beta_0 + \beta_1 t + \beta_2 UF\_HEF + \beta_3 UF\_HEF * t + \beta_4 X_i + \beta_5 Z_i + \varepsilon_i \quad (3)$$

$$Y_i = \beta_0 + \beta_1 t + \beta_2 UF\_SUBO + \beta_3 UF\_SUBO * t + \beta_4 X_i + \beta_5 Z_i + \varepsilon_i \quad (4)$$

$$Y_i = \beta_0 + \beta_1 t + \beta_2 UF\_HEF\_VO + \beta_3 UF\_HEF\_VO * t + \beta_4 X_i + \beta_5 Z_i + \varepsilon_i \quad (5)$$

where *UF* is a dummy for user fees, *UF_VO* is a dummy for combination of user fees and voucher, *UF_HEF* a dummy for combination of user fees and health equity funds, *UF_SUBO* a dummy for combination of user fees and government subsidy scheme, *UF_HEF_VO* a dummy

14 For monetary approach, the prices are always kept constant across ecological zones and over time.

15 Health expenditure for all household members was also recorded in the Non-Food Expenditure Section in 2009. The unavailability of such information in 2004 led us to use the information collected under the Health Section.

16 To some extent, this could affect the comparability of total health expenditure between 2004 and 2009.

for combination of user fees, health equity funds and voucher, t a dummy for year (2009=1), X a vector of household covariates, Z a vector of community covariates[17] and ε is an error term.

$\hat{\beta_0}$, $\hat{\beta_1}$, $\hat{\beta_2}$ and $\hat{\beta_3}$ are the coefficients to be estimated. As noted by Villa (2012), these coefficients are interpreted as follows:

$\hat{\beta_0}$	: an average outcome for the control group at baseline
$\hat{\beta_0}+\hat{\beta_1}$	: an average outcome for the control group at follow-up
$\hat{\beta_2}$	: the difference between treated and control groups at baseline
$\hat{\beta_0}+\hat{\beta_2}$	: an average outcome for the treated group at baseline
$\hat{\beta_0}+\hat{\beta_1}+\hat{\beta_2}+\hat{\beta_3}$	: an average outcome for the treated group at follow-up
$\hat{\beta_3}$	: the difference-in-differences or impact

In addition, Villa (2012) demonstrates that difference-in-differences is a flexible functional form that can be combined with other procedures such as propensity score matching (Heckman et al. 1997, 1998) and quintile regression (Meyer, Viscusi and Durbin 1995). Propensity score matching is used to ensure that the characteristics of the treatment group and the control group are as similar as possible, while quintile regression is used to examine the relationship between the independent variable and dependent variables at different points in the conditional distribution of the dependent variables.[18]

In the health sector, some variables of interest are equal to zero for a certain proportion of the observations in the dataset. For example, many households spend nothing on health services in a given reference period, resulting in data that has many zero values and is continuous. This is often called censored data. Censoring of independent variables is not a problem, but censoring of dependent variables leads to a number of econometric problems if ordinary least squares (OLS) is used. The literature highlights a number of econometric approaches to deal with a censored dependent variable. Among the most popular techniques for health expenditure modelling are the Tobit model, the sample selection model (Heckman selection model) and the two-part model (O'Donnell et al. 2008).

The selection of the most appropriate model for censored data largely depends on the values and assumptions that form the basis of the decision-making process (see Jones 2000), i.e. the decision to use health services (participation) and receive health services (consumption). The two-part model assumes that the participation and consumption decisions which are chronologically sequential lie behind medical expenditures, whereas the Tobit model simply assumes a single decision. The assumption of a single decision-making process is relatively strong since an individual is expected to have full information on the cost of treatment before going to a health facility. The sample selection model lies somewhere between the extremes of the Tobit and the two-part model, with the assumption that the two decisions—to seek medical care and the choice of how much to spend—are interdependent.[19] However, the sample selection model is required to have a variable that

17 See Table 10 for the list of covariates.

18 The standard linear regression model is to estimate the average relationship between the independent variable and dependent variables.

19 In other words, Tobit model assumes that zero and positive values are generated by the same mechanism while the two-part model allows for the possibility of different mechanisms (Cameron and Trivedi 2009).

influences the decision of whether to spend on health services but does not influence the amount of money that is spent on healthcare. In practice, such a variable is extremely difficult to find.

Given the data censoring problems of dependent variables, we combine the difference-in-differences method with the two-part model to estimate the impact of health financing policies on household health spending, as in models (1) to (5) above.

6. Empirical findings

6.1 Out-of-pocket spending on health, and poverty status

Having defined poverty status by wealth quintiles, an approach closely in line with that of the Ministry of Planning, we generate daily per capita health spending at 2009 prices for both poor and non-poor households. Relative health spending for poor households in 2004 is lower than for non-poor households in both control and treatment groups, except for households living in areas that have a combination of UF_HEF_VO schemes, because of the very small sample used for CSES 2004 (Table 7). In 2009, poor households in areas with UF or a combination of UF_VO, UF_HEF or UF_HEF_VO schemes continue to spend less on health services than non-poor households, but they spend more than the non-poor in control and UF_SUBO areas.

Between 2004 and 2009, poor households' daily per capita out-of-pocket spending on healthcare increased for all policies but was higher in the control areas, with a significant increase of 354 percent. Disaggregated by various policy combinations, spending in areas with UF_SUBO increased 97 percent, UF_HEF_VO 86 percent, UF 77 percent, UF_HEF_VO 86 percent and UF_HEF 7 percent. At the same time, the daily per capita health spending of non-poor households decreased in control and UF_HEF areas and increased for other policy combinations. These descriptive statistics suggest that not all policies and their combinations reduce household health spending, especially of the poor.

6.2 Results of the two-part model

6.2.1 Coefficient estimates

Selection equation

Full sample: The coefficients of the five health financing policies, i.e. UF, UF_VO, UF_HEF, UF_SUBO and UF_HEF_VO are negative and statistically significant at least at the 10 percent level ($p<0.10$), except for UF (Tables 9-12). This result implies that implementing UF in tandem with other policies decreases the probability of positive out-of-pocket health expenditure.

The coefficients of interaction terms between health financing policies and time dummies are positive and statistically significant at the 1 percent level ($p<0.01$) except for UF and UF_HEF. This result indicates that certain combinations of health financing policies such as UF_VO, UF_SUBO and UF_HEF_VO are more likely to have increased the probability of positive out-of-pocket health expenditure in 2009 than in 2004 (the baseline period). This could be due to the increase in UF, the continuation of informal payments or the decline in eligibility for HEF and VO.

Subsample (poor households—wealth indices 1 and 2): Among the five health financing policies, only the coefficient of UF_VO is negative and statistically significant at the 1 percent level, implying that UF_VO decreases the probability of positive out-of-pocket health expenditure. It is worth noting that UF and UF_HEF are more likely to have decreased and UF_VO and UF_HEF_VO more likely to have increased the probability of positive out-of-pocket health spending in 2009 than in 2004 (Tables 13-16).

Outcome equation

Full sample: The coefficients of interaction terms between health financing policies and time dummies capture the impact of health financing policies on out-of-pocket health spending. The result shows that only UF_HEF is negative and statistically significant at least at the 10 percent level (Tables 9-12). However, the coefficients of interaction terms between UF, UF_VO, UF_SUBO, UF_HEF_VO and time dummies are not statistically significant at the 10 percent level. This result implies that UF_HEF reduces out-of-pocket health spending, while other health financing policies are unlikely to contribute to the reduction of out-of-pocket health expenditure as originally designed.

Subsample (poor households—wealth indices 1 and 2): Among the poor households with positive out-of-pocket health expenditure, the coefficients of interaction terms between UF, UF_VO, UF_HEF, UF_HEF_VO and time dummies are negative and statistically significant at least at the 10 percent level regardless of the different approaches of the two-part model (Tables 13 and 14). This evidence confirms that UF, UF_HEF, UF_VO and UF_HEF_VO definitely help to reduce out-of-pocket health expenditure in Cambodia. In other words, UF, HEF and VO have largely increased access to healthcare services in Cambodia particularly for the poor, who represented 28 percent of the total population in 2009. In contrast, the result for SUBO is not statistically significant even at the 10 percent level, raising some concerns over the effectiveness of the government's subsidy programme. In terms of share of out-of-pocket health expenditure to total spending, we find that the coefficients of interaction terms between UF_VO, UF_HEF, UF_HEF_VO and time dummies are negative and statistically significant at least at the 10 percent level. This evidence reconfirms that UF_HEF, UF_VO and UF_HEF_VO not only reduce out-of-pocket health expenditure but also its share to total spending.

6.2.2 Marginal effects

Full sample: After examining the qualitative aspects of health financing policies on out-of-pocket health expenditure, we then focus on its quantitative aspects (i.e. marginal effects) by using normal theory retransformation to obtain its fitted value. For households that have positive out-of-pocket health expenditure, UF_HEF policy is likely to impact positively on health spending. The results show that it reduces daily per capita healthcare spending by KHR245.08 to KHR302.87, and reduces the share of health spending to total household spending by 1.51 percent to 1.76 percent (Table 17).

Subsample (poor households—wealth indices 1 and 2): Conditional on having positive out-of-pocket health expenditure, UF_HEF is likely to reduce the level of daily per capita out-of-pocket health expenditure by KHR613.23 to KHR620.05 (depending on the econometric approach). In terms of share, UF_HEF reduces the share of out-of-pocket health expenditure to total spending by 4.87 percent to 5.55 percent. UF_VO reduces daily per capita out-of-pocket expenses by KHR128.98 to KHR296.62, and UF_HEF_VO reduces daily per capita out-of-

pocket expenses by KHR495.74 to KHR595.99, depending on the econometric approach. In terms of share, UF_VO reduces daily per capita out-of-pocket expenditure by 0.44 percent to 1.87 percent, while UF_HEF_VO reduces daily per capita out-of-pocket expenditure by 3.71 percent to 4.38 percent (Table 18).

7. Conclusion and policy implications

This paper examines the impact of health financing policies—user fees (UF), health equity funds (HEF), vouchers (VO), subsidy schemes (SUBO) and various combinations of these policies—on out-of-pocket health expenditure by using nationally representative household data from Cambodia Socio-Economic Surveys 2004 and 2009. Having employed a difference-in-differences estimator with a two-part model (probit using a generalised linear model with log link and gamma distribution, and probit using ordinary linear regression with a logged dependent variable), we find that policy combinations UF_HEF, UF_VO and UF_HEF_VO help in reducing both the level of out-of-pocket health expenditure and its share to total household spending for poor households. More precisely,

- UF_HEF is likely to reduce daily per capita out-of-pocket health expenditure by KHR613.23 to KHR620.05, and its share to total household spending by 4.87 percent to 5.55 percent.
- UF_VO is likely to reduce daily per capita out-of-pocket expenditure by KHR128.98 to KHR296.62, and its share to total household spending by 0.44 percent to 1.87 percent.
- UF_HEF_VO is likely to reduce daily per capita out-of-pocket expenditure by KHR495.74 to KHR595.99, and its share to total household spending by 3.71 percent to 4.38 percent.

However, we are unable to confirm the effect of UF and SUBO on both out-of-pocket health expenditure and its share to total household spending.

Our findings highlight that the continuation and expansion of health equity funds and voucher schemes is definitely crucial for Cambodia particularly for the poor who in 2009 represented 28 percent of the total population, and emphasise the need for further policy-relevant research on user fees and government subsidies.

Table 1: Characteristics of Cambodia Socio-Economic Surveys

	Sample size	Sample coverage	Survey timing	Survey method	Number strata
CSES 1993	Villages: 498 Households: 5578	Provinces: 15	10/1993-09/1994	Truncated sampling	3 (Phnom Penh, other urban, rural)
CSES 1996	Villages: 750 Households: 9000	Provinces: 17	Round 1: 05-07/1996 Round 2: 10-12/1996	Two stage sampling	10[20]
CSES 1997	Villages: 474 Households: 6010	Provinces: 21	06/1997	Two stage sampling	3 (Phnom Penh, other urban, rural)
CSES 1999	Villages: 600 Households: 6000	Provinces: 24	Round 1: 01-03/1999 Round 2: 06-08/1999	Two stage sampling	10 (five zones urban/rural)
CSES 2004	Villages: 900 Households: 15,000	Provinces: 24	11/2003-01/2005	Two or three stage sampling	45 (province urban/rural)
CSES 2007	Villages: 360 Households: 3593	Provinces: 21	01-12/2007	Two or three stage sampling	37 (province urban/rural)
CSES 2008	Villages: 357 Households: 3,548	Provinces: 21	01-12/2008	Two or three stage sampling	37 (province urban/rural)
CSES 2009	Villages: 720 Households: 11,970	Provinces: 24	01-12/2009	Two or three stage sampling	48 (province urban/rural)
CSES 2010	Villages: 360 Households: 3600	Provinces: 24	01-12/2010	Two or three stage sampling	48 (province urban/rural)
CSES 2011	Villages: 360 Households: 3600	Provinces: 24	01-12/2011	Two or three stage sampling	48 (province urban/rural)

Note: Primary data from the 1998 General Population Census was used to construct CSES 2004 sampling frame and data from the General Population Census 2009 for CSES 2009, while those of CSES 1993/94, 1996, 1997 and 1999 were based on the UNTAC frame.

Sources: Prescott and Pradhan 1997; Ministry of Planning 1997, 1998, 2000, 2006, 2009a, 2012; World Bank 2009; Knowles 2010, 2012a, b

20 "The population was grouped into 10 strata or geographical domains, namely: Phnom Penh, other Urban areas (provincial towns and centres), the provinces (rural areas only) of Banteay Meanchey, Battambang, Kompong Thom, Pursat, Siem Reap, Svay Rieng and Ratanakkiri, and other rural areas" (MOP 1997: xiv).

Table 2: Samples for Cambodia Socio-Economic Surveys 2004 and 2009

	All sample		Excluding samples interviewed in 2003 and 2005		Common communes	
	2004	2009	2004	2009	2004	2009
Province	24	24	23	24	20	20
District	163	171	153	171	110	110
Commune	684	621	559	621	279	279
Village	859	715	695	715	396	357
Household	14840	11971	11825	11971	6356	5454

Source: Authors' calculation based on CSES 2004 and 2009

Table 3: Administrative statistics on UF, CBHI and HEF coverage areas

	2004			2007	2009				Total*
	UF	HEF	CBHI	VO	UF	HEF	CBHI	VO	
Province	21	11	2	1	24	23	8	5	24
District	133	27	3	6	182	102	26	37	185
Commune	867	74	12	54	1395	586	140	345	1621
Village	8132	655	170	504	12464	5315	1438	3701	14258

Note: Administrative data provided by MOH; *Cambodia General Population Census 2008 (MOP 2009b)

Table 4: Study household sample

Policies variables	Definition of policy variables	2004	2009
Control	control areas	693	568
UF	user fee areas	710	2067
UF_VO	user fee and voucher areas	590	826
UF_HEF	user fee and health equity fund areas	190	1076
UF_SUBO	user fee and government subsidy scheme areas	290	518
UF_HEF_VO	user fee, health equity fund, and voucher areas	90	369
UF_SUBO_VO	user fee, government subsidy schemes and voucher areas	20	30
Total		2583	5454

Note: We verified communes that implemented UF, HEF, UF and HEF, and control in two operational districts and five health centres in Prey Veng, Kampong Cham and Mondulkiri provinces.
Source: Authors' calculation based on CSES 2004 and 2009

Table 5: Descriptive statistics of household asset ownership, 2004 and 2009

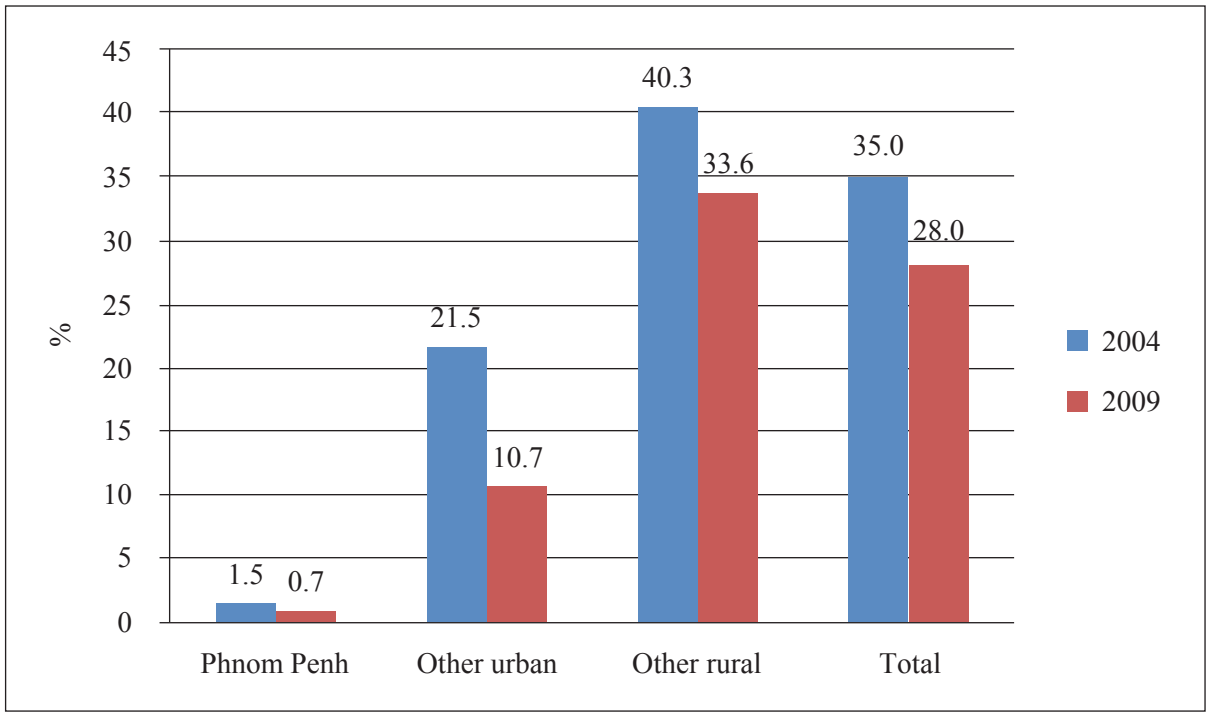
	2004	2009	Weights (PCA)
No. of durable assets per household (average)			
Radio	0.377	0.437	0.104
Stereo	0.242	0.141	0.224
Television	0.498	0.651	0.322
Camera	0.029	0.032	0.166
Video player/VCD/DVD	0.072	0.301	0.242
Cell phone	0.206	0.707	0.332
Water pump	0.087	0.119	0.061
Thresher	0.038	0.008	0.011
Rice mill	0.021	0.024	0.039
Generator	0.024	0.033	0.097
Bicycle	0.851	0.932	0.127
Cart	0.247	0.207	-0.004
Hand tractor	0.043	0.057	0.000
Rowing boat	0.087	0.058	-0.024
Motor boat	0.024	0.030	0.322
Car	0.033	0.042	0.203
Jeep	0.007	0.012	0.078
Motorcycle	0.355	0.602	0.010
Pigs	0.901	0.623	0.044
Cows	1.131	1.251	0.003
Buffalos	0.234	0.245	-0.024
Goats	0.019	0.019	0.000
Horses	0.009	0.008	-0.001
Roof primary construction material (% of households)			
Thatch, palm leaves, plastic sheet	27.800	16.000	-0.303
Galvanised iron/aluminium	35.200	45.000	0.042
Tiles, fibrous cement, concrete	37.000	39.000	0.244
Wall primary construction material (% of households)			
Bamboo, thatch, grass	43.500	33.900	-0.341
Wood, plywood, galvanised iron	46.900	53.200	0.207
Concrete, brick, stone, fibrous cement	9.600	12.900	0.244
Floor area of house (metre^2)	42.918	44.134	0.288
Total agricultural land (acre)	110.753	124.316	-0.001
Economically inactive household members (%)	41.722	37.056	0.003
No. of observations	12000	11972	

Table 6: Consumer price index (Phnom Penh prices=100)

	2004	2009
Phnom Penh	63.09	100.00
Other urban	49.25	80.22
Rural	45.20	73.48

Source: World Bank 2011

Figure 2: Poverty headcount ratio, 2004 and 2009



Source: Authors' calculation

Table 7: Out-of-pocket spending per capita per day in riel by poverty status (at 2009 prices)

	2004		2009		Change		% change	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
Control	134	478	610	469	476	-9	354	-2
UF	291	325	514	558	224	233	77	72
UF_VO	224	535	492	540	268	5	120	1
UF_HEF	183	331	197	319	13	-12	7	-4
UF_SUBO	309	391	610	553	301	162	97	42
UF_HEF_VO	145	69	269	824	125	755	86	1101
Total	242	413	461	509	219	96	91	23

Note: We define the 1st and 2nd quintiles as poor and the 3rd, 4th and 5th as non-poor.
Source: Authors' calculation

Table 8: Descriptive statistics

	2004	2009	Difference
HHH age	45.1	46.0	0.89
HHH gender (1=male)	0.80	0.79	-0.01
HHH marital status (1=married)	0.80	0.79	-0.01
HHH educational level (1=no schooling)	0.27	0.23	-0.04
HHH educational level (1=primary school incomplete)	0.41	0.43	0.02
HHH educational level (1=primary school complete)	0.20	0.21	0.01
HHH educational level (1=lower secondary school)	0.07	0.09	0.02
HHH nationality (1=Khmer)	0.96	0.97	0.01
HHH main occupation (1=agriculture)	0.42	0.44	0.02
HHH main occupation (1=industry)	0.10	0.11	0.01
HH member (aged 0–4)	0.47	0.45	-0.02
HH member (aged 5–9)	0.58	0.52	-0.06
HH member (aged 10–14)	0.71	0.52	-0.19
HH member (aged 15–64, male)	1.45	1.49	0.04
HH member (aged 15–64, female)	1.66	1.63	-0.03
HH member (aged over 64)	0.21	0.21	0.00
HH landholding (1=no agricultural land)	0.38	0.38	0.00
HH landholding (1=agricultural land <1 ha)	0.30	0.31	0.01
HH landholding (1=agricultural land 1–2 ha)	0.17	0.17	0.00
HH landholding (1=agricultural land 2–3 ha)	0.07	0.07	0.00
RD (1=Phnom Penh)	0.21	0.15	-0.06
RD (1=Plains)	0.43	0.40	-0.03
RD (1=Tonle Sap)	0.20	0.31	0.11
RD (1=Coastal)	0.10	0.07	-0.03
VC (1=having private clinic, drug shop or other shop selling drugs, 0=otherwise)	0.45	0.43	-0.02
VC : log-distance to the nearest communal health centre (km)	1.28	1.16	-0.12
VC : log-distance to the nearest district hospital (km)	1.98	2.05	0.07
VC (1=dengue, major health problem)	0.26	0.27	0.01
VC (1=not enough medicine or drugs , major health services)	0.25	0.22	-0.03
VC (1=health services are too expensive, major health services)	0.17	0.31	0.14
VC (1=having health programmes (immunisation, maternal and child health/family planning, HIV/AIDs testing, or iodine deficiency)	0.67	0.83	0.16

HHH: household head; HH: household; RD: regional dummy; VC: village characteristics.

Source: Authors' calculation

Table 9: Impacts of policies on health spending: Probit with GLM with log link and gamma distribution (full sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	uf		uf_hef		uf_vo		uf_hef_vo		all_policy	
VARIABLES	probit	glm	probit	glm	probit	glm	probit	glm	probit	glm
time	-0.285***	0.374*	-0.244***	0.473**	-0.221***	0.301	-0.292***	0.561***	-0.277***	0.268
UF	-0.0924	-0.0507							-0.104	-0.209
time_UF	0.0451	0.108							0.0809	0.221
UF_VO			-0.430***	0.414					-0.265***	0.069
time _UF_VO			0.451***	-0.524*					0.444***	-0.272
UF_HEF					-0.231*	0.455			-0.357***	0.338
time _UF_HEF					0.121	-0.852**			0.213*	-0.670*
UF_SUBO					-0.255**	-0.301			-0.240**	-0.122
time _UF_SUBO					0.579***	0.216			0.590***	0.00883
UF_HEF_VO							-0.650***	-0.234	-0.670***	-0.900*
time_UF_HEF_VO							0.929***	-0.334	1.014***	0.591
Constant	-1.163***	7.553***	-0.251	6.252***	-0.539*	6.761***	-1.455***	7.473***	-0.756***	6.940***
Observations	4009	4009	2673	2673	3330	3330	1766	1766	8007	8007

Note: Significant at ***1 percent, **5 percent and *10 percent. Explanatory variables listed in Table 8, and wealth quintiles included.
Source: Authors' calculation

Table 10: Impacts of policies on health spending: Probit with OLS with logged dependent variables (full sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	uf		uf_hef		uf_vo		uf_hef_vo		all_policy	
VARIABLES	probit	regress_log	probit	regress_log	probit	regress_log	probit	regress_log	probit	regress_log
time	-0.285***	0.176	-0.244***	0.280**	-0.221***	0.132	-0.292***	0.363**	-0.277***	0.139
UF	-0.0924	-0.261*							-0.104	-0.345**
time_UF	0.0451	0.347**							0.0809	0.358**
UF_VO			-0.430***	0.235					-0.265***	-0.0392
time _UF_VO			0.451***	-0.194					0.444***	-0.109
UF_HEF					-0.231*	0.546**			-0.357***	0.459**
time _UF_HEF					0.121	-0.733***			0.213*	-0.626***
UF_SUBO					-0.255**	-0.639***			-0.240**	-0.442**
time _UF_SUBO					0.579***	0.449**			0.590***	0.301
UF_HEF_VO							-0.650***	-0.0027	-0.670***	-0.429
time_UF_HEF_VO							0.929***	-0.608	1.014***	-0.233
Constant	-1.163***	6.893***	-0.251	6.415***	-0.539*	6.709***	-1.455***	7.425***	-0.756***	6.559***
Observations	4009	4009	2673	2673	3330	3330	1766	1766	8007	8007

Note: Significant at ***1 percent, **5 percent and *10 percent. Explanatory variables listed in Table 8, and wealth quintiles included.
Source: Authors' calculation

Table 11: Impacts of policies on the share of household health spending to total spending: Probit with GLM with log link and gamma distribution (full sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	uf		uf_hef		uf_vo		uf_hef_vo		all_policy	
VARIABLES	probit	glm	probit	glm	probit	glm	probit	glm	probit	glm
time	-0.285***	-0.071	-0.244***	0.009	-0.221***	-0.169	-0.292***	0.121	-0.277***	-0.148
UF	-0.0924	-0.279*							-0.104	-0.357**
time_UF	0.0451	0.174							0.0809	0.238
UF_VO			-0.430***	0.0647					-0.265***	-0.115
time _UF_VO			0.451***	-0.252					0.444***	-0.133
UF_HEF					-0.231*	0.228			-0.357***	0.259
time _UF_HEF					0.121	-0.621**			0.213*	-0.606**
UF_SUBO					-0.255**	-0.593***			-0.240**	-0.406**
time _UF_SUBO					0.579***	0.349			0.590***	0.176
UF_HEF_VO							-0.650***	-0.396	-0.670***	-0.720**
time_UF_HEF_VO							0.929***	-0.224	1.014***	0.273
Constant	-1.163***	2.576***	-0.251	1.726***	-0.539*	1.922***	-1.455***	2.362***	-0.756***	2.194***
Observations	4009	4009	2673	2673	3330	3330	1766	1766	8007	8007

Note: Significant at ***1 percent, **5 percent and *10 percent. Explanatory variables listed in Table 8, and wealth quintiles included.
Source: Authors' calculation

Table 12: Impacts of policies on the share of household health spending to total spending: Probit with OLS with logged dependent variables (full sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	uf		uf_hef		uf_vo		uf_hef_vo		all_policy	
VARIABLES	probit	regress_log	probit	regress_log	probit	regress_log	probit	regress_log	probit	regress_log
time	-0.285***	-0.245*	-0.244***	-0.158	-0.221***	-0.293**	-0.292***	-0.0686	-0.277***	-0.283**
UF	-0.0924	-0.369***							-0.104	-0.410***
time_UF	0.0451	0.404**							0.0809	0.397***
UF_VO			-0.430***	0.00465					-0.265***	-0.125
time _UF_VO			0.451***	-0.0293					0.444***	0.00708
UF_HEF					-0.231*	0.438**			-0.357***	0.388**
time _UF_HEF					0.121	-0.643***			0.213*	-0.578***
UF_SUBO					-0.255**	-0.902***			-0.240**	-0.651***
time _UF_SUBO					0.579***	0.637***			0.590***	0.493**
UF_HEF_VO							-0.650***	-0.185	-0.670***	-0.42
time_UF_HEF_VO							0.929***	-0.445	1.014***	-0.195
Constant	-1.163***	1.941***	-0.251	1.980***	-0.539*	1.821***	-1.455***	2.844***	-0.756***	1.644***
Observations	4009	4009	2673	2673	3330	3330	1766	1766	8007	8007

Note: Significant at ***1 percent, **5 percent and *10 percent. Explanatory variables listed in Table 8, and wealth quintiles included.
Source: Authors' calculation

Table 13: Impacts of policies on health spending: Probit with GLM with log link and gamma distribution, subsample (poor households—wealth indices 1 and 2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	uf		uf_hef		uf_vo		uf_hef_vo		all_policy	
VARIABLES	probit	glm	probit	glm	probit	glm	probit	glm	probit	glm
Time	-0.0863	1.302***	-0.218	1.479***	0.0941	0.963**	-0.315	1.665***	-0.0466	1.211***
UF	0.195	0.885**							0.0542	0.921**
Time_UF	-0.348*	-0.918**							-0.267	-0.912*
UF_VO			-0.898***	0.959***					-0.524***	0.970**
Time_UF_VO			0.807***	-1.366***					0.519**	-1.128**
UF_HEF					0.0153	0.714			-0.335	1.095*
Time _UF_HEF					-0.447	-1.477**			-0.152	-1.609**
UF_SUBO					-0.288	0.14			-0.113	0.629
Time _UF_SUBO					0.312	-0.52			0.244	-0.922*
UF_HEF_VO							-0.63	0.736	-0.398	0.931
Time _UF_HEF_VO							1.039**	-1.953**	0.608*	-1.774*
Constant	-1.752***	3.706***	-4.254	3.800***	3.957	5.348***	-1.905**	3.280**	-0.0029	5.794***
Observations	1320	1320	756	756	986	986	408	408	2804	2804

Note: Significant at ***1 percent, **5 percent and *10 percent. Explanatory variables listed in Table 8.
Source: Authors' calculation

Table 14: Impacts of policies on health spending: Probit with OLS with logged dependent variables (poor households—wealth indices 1 and 2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	uf		uf_hef		uf_vo		uf_hef_vo		all_policy	
VARIABLES	probit	regress_log	probit	regress_log	probit	regress_log	probit	regress_log	probit	regress_log
Time	-0.0863	1.000***	-0.218	1.266***	0.0941	0.766**	-0.315	1.047***	-0.0466	0.992***
UF	0.195	0.456*							0.0542	0.543**
Time_UF	-0.348*	-0.649*							-0.267	-0.739**
UF_VO			-0.898***	0.738**					-0.524***	0.627**
Time _UF_VO			0.807***	-0.958**					0.519**	-0.904***
UF_HEF					0.0153	1.080***			-0.335	1.209***
Time _UF_HEF					-0.447	-1.473***			-0.152	-1.614***
UF_SUBO					-0.288	-0.189			-0.113	0.0742
Time _UF_SUBO					0.312	-0.0369			0.244	-0.422
UF_HEF_VO							-0.63	1.202	-0.398	0.795
Time _UF_HEF_VO							1.039**	-2.326***	0.608*	-1.940***
Constant	-1.752***	4.575***	-4.254	3.340***	3.957	6.112***	-1.905**	2.481*	-0.0029	6.352***
Observations	1320	1320	756	756	986	986	408	408	2804	2804

Note: Significant at ***1 percent, **5 percent and*10 percent. Explanatory variables listed in Table 8.
Source: Authors' calculation

Table 15: Impacts of policies on the share of household health spending to total spending: Probit with GLM with log link and gamma distribution (poor households—wealth indices 1 and 2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	uf		uf_hef		uf_vo		uf_hef_vo		all_policy	
VARIABLES	probit	glm	probit	glm	probit	glm	probit	glm	probit	glm
Time	-0.0863	0.715**	-0.218	0.939***	0.0941	0.477	-0.315	1.147***	-0.0466	0.669**
UF	0.195	0.494*							0.0542	0.557**
Time_UF	-0.348*	-0.667**							-0.267	-0.702**
UF_VO			-0.898***	0.710***					-0.524***	0.651**
Time _UF_VO			0.807***	-1.110***					0.519**	-0.942***
UF_HEF					0.0153	0.456			-0.335	0.802**
Time _UF_HEF					-0.447	-1.173**			-0.152	-1.282***
UF_SUBO					-0.288	-0.173			-0.113	0.154
Time _UF_SUBO					0.312	-0.255			0.244	-0.558
UF_HEF_VO							-0.63	0.44	-0.398	0.812
Time _UF_HEF_VO							1.039**	-1.588**	0.608*	-1.603**
Constant	-1.752***	0.777	-4.254	-0.0899	3.957	1.37	-1.905**	-0.502	-0.0029	2.058*
Observations	1320	1320	756	756	986	986	408	408	2804	2804

Note: Significant at ***1 percent, **5 percent and *10 percent. Explanatory variables listed in Table 8.
Source: Authors' calculation

Table 16: Impacts of policies on the share of household health spending to total spending: Probit with OLS with logged dependent variables (poor households—wealth indices 1 and 2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	uf		uf_hef		uf_vo		uf_hef_vo		all_policy	
VARIABLES	probit	regress_log	probit	regress_log	probit	regress_log	probit	regress_log	probit	regress_log
Time	-0.0863	0.470*	-0.218	0.718**	0.0941	0.234	-0.315	0.601*	-0.0466	0.443*
UF	0.195	0.293							0.0542	0.387*
Time_UF	-0.348*	-0.439							-0.267	-0.507*
UF_VO			-0.898***	0.562*					-0.524***	0.439*
Time _UF_VO			0.807***	-0.732**					0.519**	-0.660**
UF_HEF					0.0153	0.897**			-0.335	1.059***
Time _UF_HEF					-0.447	-1.246***			-0.152	-1.399***
UF_SUBO					-0.288	-0.511*			-0.113	-0.268
Time _UF_SUBO					0.312	0.317			0.244	-0.0251
UF_HEF_VO							-0.63	0.758	-0.398	0.589
Time _UF_HEF_VO							1.039**	-1.784**	0.608*	-1.553**
Constant	-1.752***	0.482	-4.254	-0.67	3.957	1.986	-1.905**	-1.088	-0.0029	2.181**
Observations	1320	1320	756	756	986	986	408	408	2804	2804

Note: Significant at ***1 percent, **5 percent and *10 percent. Explanatory variables listed in Table 8.
Source: Authors' calculation

Table 17: Marginal effects (full sample)

Level of out-of-pocket health expenditure						
Probit with GLM with log link and gamma distribution						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
Time_UF	67.43	125.50	0.54	0.59	-178.55	313.41
Time _UF_HEF	-302.87	168.62	-1.80	0.07	-633.36	27.62
Time _UF_SUBO	291.18	142.71	2.04	0.04	11.48	570.87
Time _UF_VO	-75.49	144.08	-0.52	0.60	-357.89	206.91
Time _UF_HEF_VO	188.40	252.39	0.75	0.46	-306.27	683.07
Probit with OLS with lagged dependent variable						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
Time_UF	173.66	85.14	2.04	0.04	6.80	340.53
Time _UF_HEF	-245.08	107.35	-2.28	0.02	-455.48	-34.68
Time _UF_SUBO	368.18	98.23	3.75	0.00	175.66	560.71
Time _UF_VO	76.18	91.90	0.83	0.41	-103.93	256.30
Time _UF_HEF_VO	47.07	179.23	0.26	0.79	-304.21	398.35

Share of out-of-pocket health expenditure						
Probit with GLM with log link and gamma distribution						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
Time_UF	0.72	0.63	1.14	0.26	-0.52	1.95
Time _UF_HEF	-1.51	0.83	-1.82	0.07	-3.13	0.11
Time _UF_SUBO	2.42	0.73	3.30	0.00	0.99	3.86
Time _UF_VO	0.35	0.75	0.47	0.64	-1.12	1.83
Time _UF_HEF_VO	1.59	1.37	1.16	0.25	-1.10	4.27
Probit with OLS with lagged dependent variable						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
Time_UF	1.72	0.70	2.46	0.01	0.35	3.09
Time _UF_HEF	-1.76	0.84	-2.09	0.04	-3.41	-0.11
Time _UF_SUBO	3.63	0.79	4.62	0.00	2.09	5.17
Time _UF_VO	1.31	0.79	1.66	0.10	-0.24	2.86
Time _UF_HEF_VO	0.93	1.41	0.66	0.51	-1.83	3.69

Source: Authors' calculation

Table 18: Marginal effects of subsample (poor households—wealth indices 1 and 2)

Level of out-of-pocket health expenditure						
Probit with GLM with log link and gamma distribution						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
Time_UF	-501.59	218.11	-2.30	0.02	-929.08	-74.10
Time _UF_HEF	-620.05	229.99	-2.70	0.01	-1070.82	-169.29
Time _UF_SUBO	-103.91	175.16	-0.59	0.55	-447.21	239.39
Time _UF_VO	-296.62	200.51	-1.48	0.14	-689.62	96.38
Time _UF_HEF_VO	-495.74	365.24	-1.36	0.18	-1211.60	220.13
Probit with OLS with lagged dependent variable						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
Time_UF	-381.85	163.13	-2.34	0.02	-701.58	-62.11
Time _UF_HEF	-613.23	187.21	-3.28	0.00	-980.16	-246.30
Time _UF_SUBO	60.15	143.26	0.42	0.68	-220.63	340.93
Time _UF_VO	-128.98	157.55	-0.82	0.41	-437.78	179.81
Time _UF_HEF_VO	-595.99	326.03	-1.83	0.07	-1235.00	43.02

Share of out-of-pocket health expenditure						
Probit with GLM with log link and gamma distribution						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
Time_UF	-3.60	1.42	-2.54	0.01	-6.37	-0.83
Time _UF_HEF	-4.87	1.80	-2.71	0.01	-8.39	-1.35
Time _UF_SUBO	-0.10	1.38	-0.07	0.94	-2.81	2.61
Time _UF_VO	-1.87	1.55	-1.21	0.23	-4.90	1.16
Time _UF_HEF_VO	-3.71	3.24	-1.15	0.25	-10.05	2.63
Probit with OLS with lagged dependent variable						
	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]	
Time_UF	-3.05	1.55	-1.97	0.05	-6.08	-0.02
Time _UF_HEF	-5.55	1.79	-3.10	0.00	-9.06	-2.04
Time _UF_SUBO	1.90	1.40	1.36	0.17	-0.84	4.65
Time _UF_VO	-0.44	1.74	-0.25	0.80	-3.85	2.97
Time _UF_HEF_VO	-4.38	3.15	-1.39	0.16	-10.55	1.79

Source: Authors' calculation

References

Akashi, Hidechika, Takako Yamada, Eng Huot, Koum Kandal and Takao Sugimoto. 2004. "User Fees at a Public Hospital in Cambodia: Effects on Hospital Performance and Provider Attitudes." *Social Science & Medicine* 58(3): 553-564.

Annear, Peter. 2010. *A Comprehensive Review of the Literature on Health Equity Funds in Cambodia 2001-2010 and Annotated Bibliography.* Health Policy and Health Finance Hub Working Paper No. 9. Melbourne: Nossal Institute for Global Health, Univ. of Melbourne.

Annear, Peter Leslie, Maryam Bigdeli, Ros Chhun Eang and Bart Jacobs. 2008. "Providing Access to Health Services for the Poor: Health Equity in Cambodia." *Studies in Health Services Organization and Policy* 23: 189-226.

Annear, Peter Leslie, with Maryam Bigdeli, Ros Chun Eang and Paul James. 2007. *Study of Financial Access to Health Services for the Poor in Cambodia Phase 2: In-depth Analysis of Selected Case Studies.* Phase 2 Final Report for the Ministry of Health, WHO, AusAID and RMIT University.

Annear, Peter Leslie, with David Wilkinson, Men Rithy Chean and Maurits van Pelt. 2006. *Study of Financial Access to Health Services for the Poor in Cambodia Phase 1: Scope, Design and Data Analysis.* Research report for the Ministry of Health, WHO, AusAID and RMIT University.

Barber, Sarah, Frederic Bonnet and Henk Bekedam. 2004. "Formalizing Under-the-table Payments to Control Out-of-Pocket Hospital Expenditure in Cambodia." *Health Policy and Planning* 19(4): 199-208.

Biacabe, Sophie. 2008. *Evaluation of UNICEF Supported Health Equity Fund in Svay Rieng Province.* Phnom Penh: United Nations Children's Fund.

Bitran, Ricardo, Vincent Turbat, Bruno Meessen and Wim Van Damme. 2003. *Preserving Equity in Health in Cambodia: Health Equity Funds and Prospects for Replication.* Washington, DC: World Bank Institute.

Cameron, A. Colin, and Pravin K. Trivedi. 2009. *Microeconometrics Using Stata.* College Station, TX: Stata Press.

Card, D., and A.B. Krueger. 1994."Minimum Wages and Employment: A Case Study of the Fast Food Industry in New Jersey and Pennsylvania." *American Economic Review* 84:772-793.

Criel, B., W. Van Damme, B. Meessen and P. Ir. 2008. "A Comparative Analysis of Public Social Assistance Systems in Belgium and Health Equity Funds in Cambodia: An Overview of Lessons Learned." In *Health and Social Protection Experiences from Cambodia, China and Lao PDR*, edited by B. Meessen, X. Pei, B. Criel and G. Bloom. Antwerp: ITG Press.

Filmer, Deon, and Lant Pritchett. 1994. *Estimating Wealth Effects without Expenditure Data or Tears: An Application to Educational Enrollments in States of India.* Policy Research Working Paper 1994. Washington, DC: World Bank.

Flores, Gabriela, Por Ir, Chean R. Men, Owen O'Donnell and Eddy Van Doorslaer. 2011. *Financial Projection of Patients through Compensation of Providers: The Impact of Health Equity Funds in Cambodia.* Discussion Paper. Amsterdam: Tinbergen Institute.

Hardeman, Wim. 2001."Considering Equity in Health Sector Reform: Case Study of a New Deal in Sotnikum, Cambodia." Master's thesis, Institute of Social Studies, The Hague.

Hardeman Wim, Wim Van Damme, Maurits Van Pelt, Ir Por, Heng Kimvan and Bruno Meessen. 2004. "Access to Health Care for All? User Fees Plus a Health Equity Fund in Sotnikum, Cambodia." *Health Policy and Planning* 19(1): 22-32.

Health Economics Task Force, Ministry of Health. 2000. *Introducing User Fees at Public Sector Health Facilities in Cambodia: An Overview (Briefing Paper)*. MOH/WHO Health Sector Reform Project III in Collaboration with Strengthening District Health Systems, MOH/UNICEF Phnom Penh.

Heckman, James, Hidehiko Ichimura and Petra Todd. 1997. "Matching as Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme." *Review of Economic Studies* 64:605-654.

Heckman, James, Hidehiko Ichimura, Jeffrey Smith and Petra Todd. 1998. "Characterizing Selection Bias Using Experimental Data." *Econometrica* 66(5): 1017-1098.

Ir P. 2004. "Health Equity Funds to Improve Access to Health Care for the Poor in Cambodia." Master's dissertation, Price Leopold Institute of Tropical Medicine, Antwerp.

Ir P. 2008. *Assessing Effectiveness of Health Equity Funds Bed Censuses in Four Hospitals in Kampong Cham.* Phnom Penh: Belgium Technical Cooperation, Provision of Basic Health Services in Kompong Cham.

Ir, Por, Dirk Horemans, Narin Souk and Wim Van Damme. 2010. "Using Targeted Vouchers and Health Equity Funds to Improve Access to Skilled Birth Attendants for Poor Women: A Case Study in Three Rural Health Districts in Cambodia." *BMC Pregnancy and Childbirth* 10(1).

Jacobs, Bart., and D. Lot. 2006. *Health Seeking Behaviour, Out-of-Pocket Expenditure and Coping Mechanisms of Hospitalised Pre-identified Equity Fund Beneficiaries and Non-beneficiaries: A Survey from Kirivong.* Phnom Penh: Swiss Red Cross.

Jacobs, Bart, and Neil Price. 2004. "The Impact of the Introduction of User Fees at a District Hospital in Cambodia." *Health Policy and Planning* 19(5): 310-321.

Jacobs, Bart, and Neil Price. 2006. "Improving Access for the Poorest to Public Sector Health Services: Insights from Kirivong Operational Health District in Cambodia." *Health Policy and Planning* 21(1): 27-39.

Jacobs, Bart, and Neil Price. 2008. "A Comparative Study of the Effectiveness of Pre-Identification and Passive Identification for Hospital Fee Waivers at a Rural Cambodian Hospital." In *Health and Social Protection: Experiences from Cambodia, China and Lao PDR, Studies in Health Services Organization and Policy,* edited by Bruno Meessen, Xiaomei Pei, Bart Criel and Gerald Bloom, 437-467. Antwerp: ITG Press.

Jacobs, Bart, Neil Lewis Price and Sam Oeun. 2007. "Do Exemptions from User Fees Mean Free Access to Health Services? A Case Study from a Rural Cambodian Hospital." *Tropical Medicine and International Health* 12(11): 1391-1401. doi:10.1111/j.1365-3156.2007.01926.

Jones, Andrew. M. 2000. "Health Econometrics." In *Handbook of Health Economics*, edited by A.J. Culyer and J.P. Newhouse, 256-346. Amsterdam: Elsevier.

Jordanwood, T., M. van Pelt and C. Grundmann. 2009. *Evaluation Report: Health: Equity Funds.* Phnom Penh: University Research Co, LLC.

Keller, S., J.M. Thome and J.Y. Dekestier. 2008. *Contracting of Health Services, Ang Rokar and Kirivong Operational Districts, Takeo Province, Cambodia.* Final Evaluation Report. Phnom Penh: Swiss Red Cross.

Khun Sokrin, and Lenore Manderson. 2008. "Poverty, User Fees and Ability to Pay for Health Care for Children with Suspected Dengue in Rural Cambodia." *International Journal for Equity in Health* 7(10): 1-8.

Knowles, James C. 2010. *Poverty Estimates for Cambodia – 2008.* Report prepared for the EAS Country Units of the World Bank. Washington, DC: World Bank.

Knowles, James C. 2012a. *Poverty Profile for Cambodia – 2009.* Report prepared for and under the direction of the Poverty Reduction and Economic Management Sector Unit, East Asia and the Pacific Region, Poverty Cluster of the World Bank. Washington, DC: World Bank.

Knowles, James C. 2012b. *Headline Poverty Estimates for Cambodia-2010.* Report prepared for the EAS Country Units of the World Bank. Washington, DC: World Bank.

Ly Sopheap. 2011. "Social Health Insurance in Cambodia: An Analysis of the Health Care Delivery Mechanism." In *Improving Health Sector Performance: Institution, Motivations and Incentives; The Cambodia Dialogue*, edited by Hossein Jalilian and Sen Vicheth, 101-135. Singapore: Institute of Southeast Asian Studies.

Meessen, Bruno, and Wim Van Damme. 2004. *Health Equity Fund in Cambodia, a New Approach to Fee Exemptions, Session 7B, Reaching the Poor.* Antwerp: Institute of Tropical Medicine.

Meessen, Bruno, Wim Van Damme, Christine Kirunga Tashobya and Abdelmajid Tibouti. 2006. "Poverty and User Fees for Public Health Care in Low-income Countries: Lessons from Uganda and Cambodia." *Lancet* 368: 2253-2257.

Men, C.R., and M. van Pelt. 2006. *Two Case Studies—Phnom Penh and Ang Roka: Equity Fund's Impact on Access to Health Services.* Study of Financial Access to Health Services for the Poor, MOH/WHO/AusAID/ RMIT University. Phnom Penh, MoPoTsyo (Patient Information Centre) and Centre for Advanced Studies.

Meyer, B.D., W.K. Viscusi and D.L. Durbin. 1995. "Workers' Compensation and Injury Duration: Evidence from a Natural Experiment." *American Economic Review* 85:322-340.

MEF, Ministry of Economy and Finance. 2010. *Data of Public Expenditure of Cambodia.* Phnom Penh: Ministry of Economy and Finance.

MOH, Ministry of Health. 1999. *National Health Statistics Report 1998.* Phnom Penh: Ministry of Health, Department of Planning and Health Information.

MOH. 2008. *Health Strategic Plan 2008–2015: Accountability, Efficiency, Quality, Equity.* Phnom Penh: Ministry of Health.

MOH. 2009. *Year 2008 Report on HEF-managed HEFI/HEFOs.* Monitoring Group, Social Protection. Phnom Penh: Ministry of Health.

MOH. 2013. *Annual Health Financing Report 2013.* Phnom Penh: Bureau of Health Economics and Financing, Department of Planning and Health Information.

MOP, Ministry of Planning. 1997. *Socio-Economic Survey of Cambodia 1996: Volume II Summary Results.* Phnom Penh: Ministry of Planning.

MOP. 1998. *A Poverty Profile for Cambodia-1997.* Phnom Penh: Ministry of Planning.

MOP. 2000. *A Poverty Profile for Cambodia-1999.* Phnom Penh: Ministry of Planning.

MOP. 2006. *A Poverty Profile of Cambodia 2004.* Phnom Penh: Ministry of Planning.

MOP. 2009a. *Cambodia Socio-Economic Survey 2009.* Phnom Penh: Ministry of Planning.

MOP. 2009b. *General Population Census of Cambodia 2008.* Phnom Penh: National Institute of Statistics, Ministry of Planning.

MOP. 2012. *Cambodia Socio-Economic Survey 2010.* Phnom Penh: Ministry of Planning.

Nguyen, A. 2004. *The Svay Rieng Health Equity Fund: A Project Evaluation.* Phnom Penh: UNCEF Cambodia.

Noirhomme, Mathieu, Bruno Meessen, Fred Griffiths, Por Ir, Bart Jacobs, Rasoka Thor, Bart Criel and Wim Van Damme. 2007. "Improving Access to Hospital Care for the Poor: Comparative Analysis of Four Health Equity Funds in Cambodia." *Health Policy Planning* 22(4): 246-262.

O'Donnell, Owen, Eddy van Doorslaer, Adam Wagstaff and Magnus Lindelow. 2008. *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation.* Washington, DC: World Bank.

Ozawa, Sachiko. 2010. "Trust and Voluntary Health Insurance in Cambodia." Paper presented at the International Conference on Improving Health Sector Performance: Institutions, Motivations and Incentives, Phnom Penh Hotel, Phnom Penh, Cambodia, 27 April.

Ravallian, Martin. 1999. *The Mystery of the Vanishing Benefits: Ms Speedy Analysts Introduction to Evaluation.* Policy Research Working Paper No. 2153. Washington, DC: World Bank.

van Pelt, M. 2006. *Health Equity Fund Assessment Report for BTC/CTB.* Phnom Penh, Belgian Technical Cooperation, Provincial Basic Health Services Kompong Cham (PBHS-KC).

van Pelt, M. 2008. *Report on Short Term Consultancy for Assessment of HEFs in Kompong Cham Province.* Phnom Penh, Belgian Technical Cooperation.

van Pelt, M., and G. Morineau. 2008. "When Slum Dwellers Seek Health Care: Exploring a Community-Based Health Equity Fund's Impact on Indebtedness for Health Care and

on Utilization of Health Services." In *Health and Social Protection Experiences from Cambodia, China and Lao PDR,* edited by B. Meessen, X. Pei, B. Criel and G. Bloom. Antwerp: ITG Press.

Phoung Pheakdey. 2010. "Social Micro Health Insurance." Paper presented at the Public Health Forum on Poverty and Illness, Himawari Hotel, Phnom Penh, Cambodia, 1 April.

Prescott, Nicholas, and Menno Pradhan. 1997. *A Poverty Profile for Cambodia.* World Bank Discussion Paper No. 373. Washington, DC: World Bank.

Tangcharoensathien, V., W. Patcharanarumol, Ir P., S. Aljunid, A. Mukti, K. Akkhavong, E. Banzonand D. Huong. 2011. "Health Financing Reforms in Southeast Asia: Challenges in Achieving Universal Coverage." *Lancet* 377(9768): 863-873.

Van Damme, W., L. van Leemput, P.Ir, W. Hardeman and B. Meessen. 2004. "Out-of-Pocket Health Expenditure and Debt in Poor Households: Evidence from Cambodia." *Tropical Medicine International Health* 9(2): 273-280.

Poel, Ellen Van De, Gabriela Flores, Por Ir, Owen O'donnell, and Eddy Van Doorslaer. 2013 "Vouchers Deliver: The Impact of Subsidies on the Utilization of Maternal Health Care in Cambodia." Bulletin of the World Health Organization no. 92: 331-339.

Van de Poel, Ellen, Gabriela Flores, PorIr, Owen O' Donnell and Eddy Van Doorslaer. 2013 "Vouchers Deliver: The Impact of Subsidies on the Utilization of Maternal Health Care in Cambodia." *Bulletin of the World Health Organization* 92: 331-339.

Villa, Juan M. 2012."Simplifying the Estimation of Difference in Differences Treatment Effects with Stata." MPRA Paper No. 43943.

Wilkinson, D., J. Holloway and P. Fallavier. 2001. *The Impact of User Fees on Access, Equity and Health Provider Practices in Cambodia.* WHO Health Sector Reform Phase II Project Report. Phnom Penh: Cambodian Ministry of Health/Health Economics Task Force.

World Bank. 2009. *Poverty Profile and Trend in Cambodia: Findings from the 2007 Cambodia Socio-Economic Survey (CSES).* Report No. 48618-KH.Washington, DC: World Bank.

World Bank. 2011. *Cambodia More Efficient Government Spending for Strong and Inclusive Growth: Integrated Fiduciary Assessment and Public Expenditure Review (IFAPER).* Report No. 61694-KH. Washington, DC: World Bank.

World Bank. 2013. *World Development Indicators 2013.* Washington, DC: World Bank.

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