



Universal coverage with supply-side reform: The impact on medical expenditure risk and utilization in Thailand



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ABSTRACT

We estimate the impact on out-of-pocket (OOP) medical expenditure of a major reform in Thailand that greatly extended health insurance coverage to achieve universality while implementing supply-side measures intended to deliver cost-effective care from an increased, but modest, public health budget. Difference-in-differences comparison of groups to whom coverage was extended or deepened with those whose coverage did not change indicates that the reform reduced OOP expenditure by 28% on average and by 42% at the 95th percentile of the conditional distribution. Simulations suggest that exposure to medical expenditure risk was reduced by three-fifths, on average, generating a social welfare gain equivalent to 80–200% of the approximate deadweight loss from financing the reform. Estimated effects on health care access suggest that the policy managed to reduce households' medical expenses while also raising their utilization of both inpatient and ambulatory care.

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1. Introduction

Reduction in risk associated with medical expenses is a major motivation of those promoting the cause of universal coverage (World Health Organization, 2010). Yet legislating entitlement to free, or highly subsidized, public health care is far from sufficient to ensure that coverage is effective. Protecting low income households from medical expenditure risk requires that publicly financed health services are accessible without long delays and offer care of sufficient quality such that supposed beneficiaries need not resort to non-subsidized providers in order to obtain effective care.

Thailand legislated universal health insurance in 2001, extending publicly financed coverage to 18 million previously uninsured citizens representing almost a quarter of the population. At the time, it was a lower-middle income country spending less than \$200 per capita on health care. Recognition of the difficulty of making good on the promise

of universal coverage on such a tight budget motivated the adoption of supply-side measures intended to constrain costs and deliver cost-effective care. A tax-financed single-payer with a fixed budget had, in principle, both the incentive to contain costs and the monopsony power to constrain payments to health care providers and pharmaceutical suppliers. Payment of mainly public providers by capitation for outpatient care and prospectively at a fixed price per condition under a global budget for inpatient care gave providers little incentive to inflate demand or deliver treatments of questionable medical effectiveness. Despite these measures, total health expenditure per capita approximately doubled in real terms between 2001 and 2010, although strong economic growth ensured that the health budget remained under 4% of GDP. We examine whether this major health reform – the coverage extension, funding increase and cost-effectiveness measures – was effective in improving the financial protection of households against medical expenditure risk.

The Thai reform has been trumpeted as a success in improving financial protection (World Health Organization, 2010; Health Insurance System Research Office, 2012). But this is based merely on observed trends in household out-of-pocket (OOP) medical spending

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(Limwattananon et al., 2007; Somkotra and Lagrada, 2008; Damrongplisit and Melnick, 2009; Panpiemras et al., 2011; Health Insurance System Research Office, 2012). We identify the impact of the reform on OOP expenditures through a difference-in-differences comparison of population groups to whom coverage was extended or deepened with public sector workers, whose coverage did not change.

The reform is estimated to have reduced OOP spending of the target population by an average of 28%. There is no significant impact on the conditional median of OOP payments, but there are significant reductions in the top third of the conditional distribution that grow from 27% at the 70th percentile to 42% at the 95th percentile. These disproportionate effects at higher levels of spending imply gains in welfare from reduced exposure to medical expenditure risk. Simulations, which inevitably rely on a number of assumptions, suggest that the money equivalent of the welfare loss from risk exposure was reduced by three-fifths, on average, corresponding to an average gain equal to just less than 1% of the value of non-medical consumption, with greater improvements for the poor and private benefits to the target population that are about double the social welfare impact. Calculations suggest that the welfare gain from increased financial protection alone is at least four-fifths, and possibly as much as double, the approximate deadweight loss of financing the reform.

Our findings are consistent with those of a handful of studies of the extension or deepening of health insurance coverage in the US and Japan that find larger effects at higher levels of OOP expenditure generating welfare gains (when calculated) from the consequent reduction in risk of substantial magnitude relative to the efficiency costs of programme financing (Finkelstein and McKnight, 2008; Engelhart and Gruber, 2011; Finkelstein et al., 2012; Shigeoka, 2014). The evidence from these studies is of undoubted value in the context of high-income countries. The evidence we present is arguably of greater relevance to the policy discourse arising from the push for universal health coverage in low- and middle-income countries that is championed by the World Health Organization (World Health Organization, 2010; World Health Assembly, 2011; The Lancet, 2012). Evidence from the few related studies undertaken in the context of developing countries is mixed and refers to policy interventions that are very different from the Thai reform. A means-tested subsidy for the purchase of private insurance covering care at a restricted network of providers in Colombia has been found to reduce the level and variability in household expenditures on inpatient care (Miller et al., 2013). On the basis of an experiment that offers only a ten-month window to identify an effect, voluntary, subsidized health insurance in Mexico appears to have lowered OOP spending (King et al., 2009) and compressed the distribution, but with gains from reduced risk exposure that are modest relative to programme costs (Barofsky, 2011). A few studies get the apparently paradoxical result of increased household OOP spending, particularly at high levels, arising from the extension of health insurance to poor populations (in China and Peru) (Wagstaff and Lindelow, 2008; Wagstaff et al., 2009; Bernal et al., 2014). The explanation offered is that insurance can initiate contact with medical services. If, unlike was intended by the design of the Thai reform, the provider payment system gives little incentive to deliver cost-effective care, then financial risk protection may be eroded by doctors prescribing treatment that is not fully covered, and may even be medically inappropriate. This paper presents the first evidence of the impact on medical expenditure risk of entitlement to near comprehensive health insurance granted to the entire population not already covered by employment-based insurance combined with an organizational structure and payment reform that aimed to encourage efficient delivery through a public health service.

Gruber et al. (2014) find that the Thai reform increased inpatient admissions and argue that this contributed to a large decrease in infant mortality. We add to the evidence of the reform's impact on health care utilization both because interpretation of a negative effect on OOP spending differs if it is accompanied by an increase in utilization

and because medical care use, as an important determinant of health, is of more immediate interest.

Broadly consistent with Gruber et al. (2014), we find that the probability of inpatient admission was raised by one percentage point (16%) on average. We establish that this was not achieved by patients bypassing lower level, but not necessarily less cost-effective, primary care. Utilization of formal ambulatory care when sick increased by 3.7 percentage points (5.3%) by reducing reliance on self-medication and the propensity to forgo treatment altogether. The effects are largest for the elderly population. Since the elderly, in principle, had cover prior to the reform, this is consistent with the hypothesis advanced by Gruber et al. that the impact on utilization was mainly attributable not to the extension of coverage to new populations but to the funding increase that made previously nominal coverage held by some groups more effective. However, the heterogeneity of the effect by poverty status, as well as across urban and rural locations, is not consistent with this interpretation and casts some doubt on the extent to which the reform succeeded in its objective of equalizing access to health care.

In Section 2 we outline health insurance in Thailand before and after the reform. Section 3 explains the data used in the analysis of OOP spending and presents descriptive statistics. Estimation methods are explicated in Section 4. The estimated effects on OOP spending are given in Section 5 and the following section presents a welfare analysis based on these. The analysis of utilization is presented in Section 7. The final section concludes.

2. Health insurance in Thailand

2.1. Pre-reform

Ten years before the universal coverage reform in 2001, two-thirds of Thai citizens had no formal health insurance. Expansion of various public health insurance schemes cut this fraction to less than 30% just before the reform (Fig. 1). The single largest scheme was a non-contributory Medical Welfare Scheme that entitled the poor, children (<12 years, plus pupils), the elderly (60+), the disabled and a few other groups to care in public facilities free of charge. This tax-financed scheme covered 32% of the population in 2001. The annual budget per enrollee was just 273 Baht (~\$6.82) in 1998 (excluding salary costs) but through cross-subsidization it is estimated that expenditure exceeded the official budget by as much as 70% (Donaldson et al., 1999; Pannarunothai, 2002). The second largest programme prior to the reform was a Voluntary Health Card Scheme in which 21% of the population was enrolled in 2001. For 500 Baht (\$12.50) per year, households could purchase a health card that entitled up to five household members to free care at

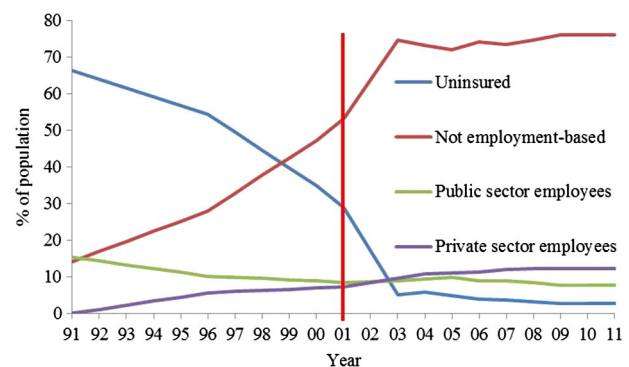


Fig. 1. Percentage of population uninsured and covered by public health insurance schemes, 1991–2011. Source: Authors' estimates using Health and Welfare Surveys. Notes: *Not employment-based* refers to those covered by the Medical Welfare Scheme and the Voluntary Health Card Scheme pre-reform (2001) and those covered by the universal coverage scheme post-reform. *Public sector employees* refers to those (including dependents) covered by the Civil Servants Medical Benefit Scheme. *Private sector employees* refers to those covered by the Social Security scheme. Sample weights applied.

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