

# T D R I

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THE SOCIAL HEALTH  
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# HOW STRONG IS THE SOCIAL HEALTH INSURANCE EFFECT ON OUT-OF-POCKET EXPENDITURE?: EVIDENCE FROM THAILAND\*

Wichsinee Wibulpolprasert  
Worawan Chandoevmit



\* The authors, Wichsinee Wibulpolprasert, Thailand Development Research Institute ([wichsine@alumni.stanford.edu](mailto:wichsine@alumni.stanford.edu)), and Worawan Chandoevmit, Faculty of Economics, Khon Kaen University, and Thailand Development Research Institute ([worawan@tdri.or.th](mailto:worawan@tdri.or.th)), would like to thank seminar participants at Stanford University, Thailand Development Research Institute, and iHEA for their helpful comments and suggestions on the present paper. They also would like to acknowledge with gratitude financial support from the Rockefeller Foundation. Their views in this paper do not necessarily represent those of the Thailand Development Research Institute, Khon Kaen University, or the funding organization. Any errors are their own.

## 1. INTRODUCTION

In January 2002, the Thai government launched one of its largest social health insurance schemes in history: the Thai Universal Health Coverage (UHC) scheme. Financed through general tax revenues, UHC provides the majority of the Thai population with free health care. Within one year of this reform, UHC coverage was expanded to include 47 million people, or 75 percent of the Thai population (Health Insurance System Research Office, 2012).

Prior to this reform, about 70 percent of the Thai population had some form of health insurance (Figure 1). Of this proportion, 16 percent were insured either through the Civil Servant Medical Benefit Scheme (CSMBS) or the Social Security (SS) system, and 53 percent were insured through the Medical Welfare Scheme (MWS), Voluntary Health Card Scheme (VHCS) and private health insurance (World Bank, 2008). The UHC scheme provides free health care for people who were previously insured under MWS and VHCS, as well as the uninsured.<sup>1</sup>

The primary goal of the UHC scheme is to provide an equitable entitlement to basic health care for all of the Thai population. To achieve this goal, UHC provides a comprehensive health benefit package that is focused on disease prevention and health promotion. The secondary goal of the UHC scheme is to provide those in need with financial risk protection and consumption-smoothing benefits. Through free access to healthcare services, UHC is aimed at accomplishing this goal by alleviating the incidence of medical impoverishment among the vulnerable population, especially the uninsured poor.

Existing studies have documented the success of UHC in fulfilling its primary goal. In particular, a number of studies have shown that UHC improves the health status of people, reduces out-of-pocket

<sup>1</sup> For this last group of the population, a copayment of 30 baht (less than US\$1) per visit was charged.

Figure 1: Composition of health insurance schemes in Thailand before and after the 2002 Universal Health Coverage reform



Source: World Bank (2008).

health expenditure, and increases healthcare utilization among beneficiaries (Somkotra and Lagrada, 2008; Limwattananon et al., 2015; Health Insurance System Research Office, 2012; Gruber et al., 2014; Wagstaff and Manachotphong, 2012). Empirical evidence of the impact of UHC on financial risk protection and consumption-smoothing is, however, much more limited. Recent data from the Health Insurance System Research Office (2012) revealed that medical impoverishment, defined as the number of non-poor households who fall below the national poverty line after paying for medical expenditures, had decreased from 2.71 percent of the total population in 2000 to 0.49 percent in 2009.<sup>2</sup> Limwattananon et al. (2015) estimated that the reduction in out-of-pocket health expenditure occurred most at the top

of the conditional quantile. These findings indicate that UHC helps protect households, especially those that are vulnerable, from the adverse effects of having to make catastrophic healthcare expenditure. However, it is important to note that, at the time UHC was launched, the government also implemented many new programs aimed at helping vulnerable households. To study the impact of UHC, defining counterfactual households accurately and controlling for other confounding factors are the major contributions of this study.

The objectives of the study are to evaluate how strong is the effect of the 2001 healthcare reform on household out-of-pocket medical expenditure and whether households switch the saving from out-of-pocket medical expenditure to other non-medical expenditure. In our study, we estimated UHC's treatment effect on two outcome variables: monthly out-of-pocket

<sup>2</sup> Also, see NaRanong and NaRanong (2006); Limwattananon (2007) for additional studies with similar findings.

medical expenditure per capita and monthly non-medical expenditure per capita. We addressed several identification concerns found in Kirdruang (2011). First, Kirdruang (2011) considered 2001 to be a pre-reform period. In fact, the UHC had already been rolled out in several regions of Thailand starting in 2001. Thus, the use of 2001 as the pre-reform period could have contributed to the imprecise or underestimation of the treatment effect. We addressed this issue by choosing 2000 as the pre-reform period. Second, Kirdruang (2011) did not take into account the fact that the treatment and control households are fundamentally different from each other. If this is indeed the case, the unparalleled movement in the unobserved factor could introduce bias into the estimation. We addressed this concern by matching the treatment and control households on a propensity score before estimating the treatment effect.

## 2. METHOD

The first step in program evaluation is to define the treatment and control group. In Figure 1, it is suggested that individuals who were uninsured or were insured under MWS and VHCS before 2002 should be considered the *treated group* because they subsequently experienced a change in their health insurance benefits. In particular, the uninsured went from paying all of their healthcare costs themselves to being covered by a comprehensive healthcare package with a per capita budget of 1,202 baht per year. Further, for individuals covered under MWS and VHCS, the UHC scheme provides a more generous health service package with a much higher per capita budget.<sup>3</sup> Individuals who were covered under the CSMBS or SS

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<sup>3</sup>Assuming that the quality of care and utilization behavior are unchanged, those insured under the former MWS and VHCS should receive more coverage and pay less in out-of-pocket expenditure under UHC.

schemes, however, experienced no change in their health benefit package after the 2002 reform. Thus, we classified these individuals as our *control group*.

To determine the treatment status of a household, it is necessary to first determine health insurance eligibility of individual members. Socio-Economic Survey (SES) data do not contain details on the insurance status of individual household members for the pre-reform period (up to 2002). To address this problem, we constructed a set of rules (a modified version of Kirdruang (2011)) in order to assign health insurance eligibility status to individuals. (The assignment rule is available upon request.)

It is important to emphasize that we defined the treatment and control groups based on *eligibility* rather than the actual take-up of health benefits. Thus, we interpreted our results as the *intent-to-treat effect* of the reform on the consumption behaviors of households.

This treatment and control definition leaves us with two control groups (CSMBS and SS), and one treatment group (MWS, VHCS, and the uninsured). This individual-level insurance status gives rise to seven household-level insurance configurations. We classified the treatment and control status of a household based on Table 1.

To capture the effect of the reform as cleanly as possible, we first excluded from the analysis households with mixed UHC eligibility status. This exclusion leaves us with household type 1 as our treatment group and household types 5, 6, and 7 as our control groups. Next, we restricted our treatment group to only household types 2-4. This latter analysis is referred to as *partial treatment* analysis. Furthermore, we estimated only the impact of UHC on households whose heads are economically active, which involved excluding households whose heads are above the retirement age (60 years) or who had

Table 1: 2000 and 2004 Socio-Economic Survey samples, by household type (based on assignment rule)

Household type	Insurance configuration	Group	Percentage of households
1	All VHCS/MWS/uninsured	Pure treatment	63.32
2	MWS/VHCS/uninsured and CSMBs	Partial treatment	5.22
3	MWS/VHCS/uninsured and SS	Partial treatment	11.57
4	MWS/VHCS/uninsured, CSMBs, and SS	Partial treatment	0.45
5	All CSMBs	Pure control	15.69
6	SS $\geq$ 1 and CSMBs $\geq$ 1	Pure control	0.28
7	All SS	Pure control	3.46

reported their work status as economically inactive or no occupation.

We assumed a linear conditional mean function for the outcome of interest. In particular, we let  $y_{it}$  be medical expenditure or non-medical expenditure of household  $i$  in period  $t$ . We let  $Treat_i$  be an indicator that is equal to 1, if household  $i$  is treated and  $Post_t$  be an indicator variable that is equal to 1, if year  $t$  is after the UHC reform.

The baseline estimation equation is:

$$y_{it} = \alpha Treat_i + \gamma Post_t + \delta Treat_i * Post_t + \beta' \mathbf{X}_{it} + \epsilon_{it}$$

where,  $\mathbf{X}$  is a vector of household characteristics. Under this specification, a constant average treatment effect on the treated is assumed, which is captured by parameter  $\delta$ .

An ideal experiment for measuring the effect of the UHC reform is to compare spending patterns of a treated household with its untreated counterpart. As is common in a non-randomized control setting, the behavior of the untreated counterpart is unobservable in this case. Thus, the untreated household sample is used as a comparison group.

The main identifying assumption for estimating the treatment effect in equation 1 is that in the absence of the UHC reform, a treated household would have had a similar spending

trend as untreated (control) households. This assumption is unlikely to hold in this setting, however, because the UHC-eligible individuals are workers in the non-formal sectors, who generally have lower education and income levels than untreated individuals. To address this concern, we employed a propensity score-matching technique to select control households that serve as a better counterfactual for our treated households.

We conducted propensity score matching in two steps. First, we estimated a probit model of treatment as a function of demographics. The propensity score was constructed from the predicted probability of treatment. Second, for each survey year, we matched each treated household to a set of control households using the Kernel matching method.<sup>4</sup> More specifically, for each matched treatment household, we calculated the difference in their outcome variable. Lastly, we calculated the average treatment effect on those treated by subtracting the average difference in the pre-treatment period by the average difference in the post-treatment period. The averages were all weighted by the sampling weight to provide a nationally representative treatment effect.

<sup>4</sup> We used the Epanechnikov kernel function with bandwidth 0.06. More details on propensity score matching on cross-sectional data can be found in Blundell and Costa Dias (2009).

**Table 2: Summary statistics for each outcome variable (average monthly per person)**

Variable	Treatment		Control		$\Delta$	t-stat
	2000	2004	2000	2004		
<i>Pure treatment</i>						
Medical expenditure (Baht)	55.55	47.28	103.39	117.21	-22.08	-1.69
Non-medical expenditure (Baht)	2,119.29	2,766.70	6,703.88	7,455.00	-103.71	-0.35
N	10,650	14,255	3,062	4,580		
<i>Partial treatment</i>						
Medical expenditure (Baht)	83.10	73.93	103.39	117.21	-22.98	-1.46
Non-medical expenditure (Baht)	3,630.52	4,043.54	6,703.88	7,455.00	-338.09	-1.07
N	2,596	4,186	3,062	4,580		

Note: Statistics are weighted by the surveys' population weight.

### Controlling for the effects of the Village Fund program

During the same time that the UHC scheme came into effect, another popular policy that the government proposed after the general election in 2001 was the “Million Baht Village Fund” (VF). Under this program, each village nationwide was allocated 1 million baht for use as a micro-loan (Kaboski and Townsend, 2012; Chandoevrit and Ashakul, 2008). Since our outcome of interest – a household’s spending – could be affected directly by the VF, we needed to carefully isolate the effect of the VF from the effect of the UHC scheme. We also estimated a version of the treatment effects by controlling for whether a household received funding from the VF program in 2004.

## 3. DATA AND SUMMARY STATISTICS

### Data sources

The data used in this analysis came from the national Socio-Economic Survey (SES) in 2000 (pre-UHC) and in 2004 (post-UHC). SES is a repeated cross-sectional survey that is conducted every other year.<sup>5</sup> The

survey contains information on individual-level demographics, socio-economic status, household income and expenditure.

We supplemented the SES data with data from the Health Welfare Survey (HWS) and the Labor Force Survey (LFS). The last two surveys are conducted jointly (but separately from SES) every other year, except for the period from 2003 to 2007. HWS contains information on an individual’s demographics, insurance status, health-seeking behavior, expenditure on different types of medical service, and health behaviors. LFS, which is linked to HWS, contains information on an individual’s current and past employment status, workplace characteristics, wage, and job-search behaviors.

We used data from HWS to verify that our insurance status assignment rules would be quite accurate. (Verification results are available upon request.)

Table 2 presents summary statistics for the three outcome variables in 2000 (pre-UHC) and 2004 (post-UHC).

In Table 3, the pre-treatment household characteristics are compared between the treated and control samples. We performed the comparison test for the raw sample and the propensity score-matched sample. Expenditure and income are expressed in baht in 2002.

<sup>5</sup> An exception was in 1999 and 2001 when SES was conducted annually to assess the economic impact of the 1997/98 Asian financial crisis. The survey has been conducted annually since 2006.

**Table 3: Covariate balance, pre-treatment period (average per household)**

Variable	Unmatched			Matched		
	Treatment	Control	t-stat	Treatment	Control	t-stat
<i>Matched variables</i>						
Urban	0.74	0.73	1.30	0.74	0.73	1.30
Male head	0.77	0.76	1.42	0.78	0.80	-2.28
Age of head	43.41	39.81	18.74	43.18	41.56	9.97
Fraction of members male	0.47	0.49	-3.02	0.48	0.48	-0.75
Fraction of members (no education)	0.06	0.01	15.00	0.05	0.03	7.83
Fraction of members (elementary ed.)	0.70	0.21	69.90	0.72	0.74	-3.35
Fraction of members (secondary ed.)	0.16	0.24	-13.50	0.16	0.16	-0.52
<i>Additional control variables</i>						
Central region	0.24	0.30	-6.61	0.24	0.36	-15.01
Northern region	0.25	0.22	3.35	0.25	0.23	2.35
Northeastern region	0.32	0.29	3.65	0.32	0.26	8.11
Southern region	0.19	0.19	-0.63	0.19	0.15	5.73
Household size (persons)	3.63	2.75	28.25	3.64	2.89	29.36
Average age of members (years)	31.21	32.19	-4.42	31.00	34.01	-16.03
Monthly household income (baht)	9,377.59	21,681.55	-37.13	9,330.37	13,102.84	-16.47

*Note: Statistics are weighted by kernel weight from propensity score matching. We did not apply population weight to these averages.*

Variables used for propensity score matching are those that are likely to be constant over time, have influenced the treatment probability of the households, and are not affected by the UHC treatment. These variables include an urban indicator, male head of household indicator, age of head, fraction of male members, fraction of members with no education, primary school education, and secondary school education.

Tables 2 and 3 indicate that our treated and control households are quite different from each other. In particular, the control households are wealthier, smaller in size, have younger heads, and have more members who received an education at the secondary school or higher level. Propensity score-matching enables us to select control households that are more similar to the treatment households along these dimensions.

## 4. RESULTS

### 4.1 Average treatment effect on the treated

Table 4 reports the estimated treatment effect for the two outcome variables: out-of-pocket medical expenditure per capita and non-medical expenditure per capita. We estimated the average treatment effect separately for the pure treatment group and the partial treatment group. The treatment effects estimated by propensity score matching as well as by difference-in-difference style regression are reported. Standard errors for propensity score-matching were obtained by bootstrapping with 200 replications.

As mentioned previously, since we could not observe whether a beneficiary household actually took up its UHC benefit, we could interpret our results only as the *intent-to-treat* effect.

**Table 4: Treatment effect for the three outcome variables (monthly per person)**

Variable	Pure treatment		Partial treatment	
	coefficient	SE	coefficient	SE
<i>Matching estimator<sup>a</sup></i>				
Medical expenditure	-20.83 <sup>*</sup>	12.32	-14.57	16.41
Non-medical expenditure	82.05	183.67	-88.58	131.40
<i>Ordinary least squares (OLS) regression<sup>b</sup></i>				
Medical expenditure	-27.75 <sup>**</sup>	13.36	-23.45	15.52
Non-medical expenditure	-114.39	234.69	-265.91	259.44

Note: \*\* p<0.05, \* p<0.1.

<sup>a</sup> Variables used to estimate propensity scores are: indicator of urban residence, indicator of male head of household, fraction of household members with no education, fraction of household members with elementary education, and fraction of household members with secondary education. Additional controls are region indicators, household size, average age of household members, and monthly income.

<sup>b</sup> Variables used in OLS estimations are: indicator of urban residence, household size, indicator of male household head, age of household head, fraction of male household members, fraction of household members with no education, fraction of household members with elementary education, fraction of household members with secondary education, average age of household members, region indicators, monthly income, indicators of Village Fund recipient, and province indicators.

In the top panel of Table 4, the matching estimators show that UHC leads to a 20.8 baht reduction in the per capita out-of-pocket medical expenditure of the purely treated households. This is equivalent to a 31 percent reduction from the counterfactual medical expenditure without UHC.<sup>6</sup> The reduction is statistically different from zero at the 10 percent significance level. Monthly non-medical expenditure per capita increased by 82 baht, or 3 percent of the counterfactual expenditure in 2004, although it is not statistically different from zero. Overall, we found statistical evidence that UHC leads to a reduction in out-of-pocket medical expenditure for the pure treatment group. However, this reduction in medical expenditure does not lead the

beneficiary households to spend more in any statistically significant way. For the partial treatment group, we did not find statistical evidence of the UHC impacts on any of the outcome variables.

In the bottom panel of Table 4, the ordinary least squares (OLS) regression estimated reductions in out-of-pocket medical expenditure and non-medical expenditure that are larger than the matching estimators. All of the treatment effects for the pure treatment group are statistically different from zero at the 5 percent level, except for non-medical expenditure.

### Robustness checks

We reported the estimates from the robustness check shown in Table 5. The estimated treatment effects on medical expenditure are directly duplicated from Table 4 since they should not be affected by

<sup>6</sup> To calculate the counterfactual medical expenditure, we simply added the average medical expenditure for the treatment group in 2004, as reported in Table 4, to the estimated average treatment effect.

**Table 5: Treatment effect for the three outcome variables, controlling for Village Fund status (monthly per person)**

Variable	Pure treatment		Partial treatment	
	coefficient	SE	coefficient	SE
<i>Matching estimator<sup>a</sup></i>				
Medical expenditure	-20.83 <sup>*</sup>	12.32	-14.57	16.41
Non-medical expenditure	108.67	167.79	-88.44	145.68
<i>Ordinary least squares (OLS) regression<sup>b</sup></i>				
Medical expenditure	-27.74 <sup>**</sup>	13.36	-23.45	15.52
Non-medical expenditure	-112.20	232.52	-256.47	258.18

Note: \*\* p<0.05, \* p<0.1.

a Variables used to estimate propensity scores are: indicator of urban residence, indicator of male head of household, fraction of household members with no education, fraction of household members with elementary education, and fraction of household members with secondary education. Additional controls are region indicators, household size, average age of household members, and monthly income.

b Variables used in OLS estimations are: indicator of urban residence, household size, indicator of male household head, age of household head, fraction of male household members, fraction of household members with no education, fraction of household members with elementary education, fraction of household members with secondary education, average age of household members, region indicators, monthly income, indicators of Village Fund recipient, province indicators, and year indicators.

the inclusion of the Village Fund variable. The estimated treatment effects on the non-medical expenditure have similar signs as the treatment effect estimated in Table 4. The analysis suggests a larger increase in non-medical spending compared with that shown in Table 4. Again, none of the estimated treatment effects is statistically different from zero.

#### 4.2 Using a panel of rural households from SES 2002 and SES 2004

In 2004, the National Statistical Office of Thailand (NSO) resurveyed 5,755 rural households that were originally surveyed in quarters 2 and 3 of 2002 (Chandoevmit and Ashakul, 2008). In taking advantage of these panel data, we estimated the change in the conditional mean of each outcome variable for 2002 and 2004. Using the same screening criteria – only households whose head was 60 years old or younger and economically active – produces a panel of 3,488 rural households

in each year. Assuming that the effect of UHC on non-medical expenditure took off gradually over time, the estimated changes in the conditional mean can be thought of as a partial causal effect of the UHC scheme on these outcomes.<sup>7</sup>

Table 6 shows these additional results using the 2002-2004 panel. As a reference point, the first column of Table 6 reports the propensity score-matched estimators using all the rural households from 2002 and 2004. Both models suggest that the UHC scheme does not have any statistically significant impact on out-of-pocket medical expenditure, which is to be expected since beneficiaries were entitled to reduced medical spending right away. Furthermore, the treatment effects on non-

<sup>7</sup> We controlled for the effect of the Village Fund program by adding an indicator variable in the regression for Village Fund receipt.

**Table 6: Treatment effect using 2002-2004 panel data, pure treatment group (monthly per person)**

Variable	Matching estimator <sup>a</sup>		Panel regression <sup>b</sup>	
	coefficient	SE	coefficient	SE
Medical expenditure	16.80	21.93	0.86	5.89
Non-medical expenditure	69.77	145.60	90.08	68.65

a The sample is restricted to households that live in rural area. Variables used to estimate propensity scores are: indicator of urban residence, indicator of male head of household, fraction of household members with no education, fraction of household members with elementary education, fraction of household members with secondary education, region indicators, and indicators of Village Fund recipient.

b Variables used in the panel ordinary least squares estimation are: indicator of urban residence, household size, indicator of male household head, age of household head, fraction of male household members, fraction of household members with no education, fraction of household members with elementary education, fraction of household members with secondary education, average age of household members, region indicators, current monthly income, indicators of Village Fund recipient.

medical expenditure per capita are imprecisely estimated in both models.

## 5. DISCUSSION AND CONCLUSION

One of the major goals of a social insurance program is to provide the general public with risk protection, especially those in need. In the context of social health insurance, this benefit entails access to healthcare services and a reduction in income uncertainty that might result from unexpected health expenditure.

Thailand's Universal Health Coverage (UHC) scheme, which was rolled out completely in 2002, furnishes a comprehensive healthcare service to the entire Thai<sup>8</sup> population who were not formerly covered by any other such insurance program. In effect, the program not only provides access to medical services, but also furnishes its beneficiaries with financial protection against future catastrophic health expenditure. In this study, the impact of this financial protection is estimated using

a difference-in-difference framework. In recognizing that the treatment and control households are fundamentally different, we utilized a propensity score-matching estimation to minimize biases on the estimated treatment effects.

We found no statistical evidence of the UHC having an impact on the non-medical expenditure of beneficiary households. In particular, our matching estimators revealed that UHC reduces households' out-of-pocket medical expenditure by 31 percent of what would have been the case without the UHC scheme. However, this reduction in medical expenditure – and hence risk – does not translate into a statistically significant impact on non-medical expenditure. Our results are robust for several alternative specifications.

Our estimated average treatment effect for 2004 suggests that UHC reduces out-of-pocket medical expenditure by 20.8 baht, which is similar to the finding of Limwattananon et al. (2015), who estimated the treatment effect to be 18.6 baht. The difference could be attributed to the assumption used in the estimation. Limwattananon et al. (2015) assumed a common trend in the *relative* medical spending

<sup>8</sup> The UHC benefits are extended only to Thai citizens with valid national IDs. Thus, the scheme does not cover migrant workers or foreigners.

and thus estimated a non-linear model using gamma pseudo maximum likelihood (GPML) estimation. We assumed a common trend in the level of medical spending, which is made more likely with propensity score matching.

Kirdruang (2011) used SES data from 2001 and 2004 to estimate the short-run impact of UHC on saving and non-medical expenditure. Kirdruang (2011) found that the UHC scheme does not lead to any statistically significant reduction in household saving or non-medical expenditure, and thus concluded that UHC does not have any risk reduction effect on the beneficiary households. Despite the identification concerns mentioned in section 1, our results are consistent with these findings.

We took a closer look at the distribution of out-of-pocket medical expenditure per capita for our treatment households, which is shown in Table 7. As is evident from the table, the out-of-pocket medical expenditure never exceeds 10 percent of household income for at least 95 percent of the beneficiary households. Further, even for the 99th percentile, out-of-pocket medical expenditure was 22 percent of household income in 2000, which is far below the reported maximum of 85 percent of

household income.

We attribute the lack of statistical impact to three factors. First, for the majority of households, medical expenditure has historically accounted for a small fraction of household income: 2 percent on average. For at least 95 percent of all the treatment households, the fraction of out-of-pocket medical expenditure never exceeds 10 percent. It is possible that most households did not perceive their medical risk to be high enough. Thus, even though the UHC scheme was successful in reducing the financial burden caused by medical spending, it does not have much impact on overall spending behavior. Second, it is possible that the UHC scheme actually reduces perceived medical risk and changes household wealth. However, its impact could not be measured from the survey data that we used. Common forms of wealth-holding among the Thai population are non-cash assets, such as land, houses, and jewelry. Therefore, it is possible that the risk-reduction benefit of the UHC scheme would function through this channel. Lastly, since we could not observe whether all of the eligible individuals actually utilized the UHC benefits, our results can at most be interpreted as the treatment effect on those who are eligible. If the eligible households do not think of the UHC scheme as their insurance option, their perceived medical risk and hence their spending behavior would not have been changed by the program.

To sum up, our results are optimistic in showing that the UHC scheme was effective in reducing out-of-pocket medical expenditure among the beneficiary households. A back-of-the-envelope calculation reveals that the total reduction in out-of-pocket medical payment could have been worth at least 12 billion baht (or approximately \$294 million) in 2004.<sup>9</sup> This amount of money can be

**Table 7: Distribution of out-of-pocket medical expenditure as a fraction of household income, pure treatment group**

Percentile	Fraction of income	
	2000	2004
1	0.00	0.00
5	0.00	0.00
10	0.00	0.00
25	0.00	0.00
50	0.01	0.00
75	0.02	0.01
90	0.06	0.04
95	0.10	0.06
99	0.22	0.18
Average	0.02	0.02
Max	0.85	0.81

Note: The statistics are weighted by the surveys' population weight.

<sup>9</sup> We used the average reduction of 20.83 baht from Table 7. We also assumed that 75 percent of the Thai population was covered by the UHC scheme in 2004. The total population of Thailand was 65.4 million in 2004. Source: <http://data.worldbank.org/indicator/SP.POP.TOTL?page=2>. Lastly, we used the average exchange rate of 40.8 baht to US\$1 in 2004. Source: Bank of Thailand.

thought of as wealth transfer from the general population to UHC beneficiaries, which is only a part of the overall benefit of the UHC scheme. The total benefit would be even larger once health improvement among the beneficiaries is taken into account. However, quantifying such health benefits is beyond the scope of this paper.

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# CONCEPTUAL AND STRATEGIC FRAMEWORKS FOR DEVELOPING A RULE OF LAW INDEX AND RELATED INDICATORS FOR THAILAND\*

A research project initiated in 2016 by the public organization of Thailand's Institute of Justice is aimed at promoting the development of a rule of law strategy in Thai society. Its primary objectives are: (a) to effectively promote instruments for supporting the rule of law in Thailand; (b) to promote and enhance true understanding of the fundamental mechanisms of the "rule of law" through a systematic approach, ultimately achieving progressive results in the execution of projects and activities; (c) to establish initial knowledge and basic data for the development of a strategy for developing a rule of law index and related indicators; and (d) to provide data in relation to the "rule of law" index and assist in its implementation in Thai society. The research methodology included literature reviews and examination of relevant academic publications, analysis of the meaning and conceptual framework under which the rule of law

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\*Based on the executive summary of a research project on this topic submitted to the Thailand Institute of Justice (Public Organization) in August 2016. The researchers are Dr. Ammar Siamwalla (TDRI Distinguished Scholar), Dr. Jakkrit Kuanpoth (TDRI Research Director for Economic Laws), Dr. Nuttanan Wichitaksorn (TDRI Research Fellow), Dr. Boonwara Sumano (TDRI Research Fellow), Mr. Itsakul Unahakate (TDRI Researcher), Mr. Jirawat Suriyashotichyangkul (TDRI Researcher), and Mr. Thanapat Chatinakrob (TDRI Researcher). The full report (in Thai) is available on the TDRI website (<http://tdri.or.th/research/rule-of-law-index/>).



operates, and compilation of data, taking into account the United Nations Sustainable Development Goals and guidelines for developing a strategic framework. Together with in-depth interviews with academics, researchers, and practitioners, a focus group meeting, and a public seminar, extensive scrutiny of the “rule of law” was carried out in constructing the index.

## RESEARCH SUMMARY

**1. With regard to accuracy in the development of a strategic framework, regulating the conceptual framework of the rule of law is important for two reasons: (a) the adoption by voters in a referendum of a newly drafted Thai constitution; and (b) the various international agreements into which Thailand has entered, as they will drive application of the rule of law and promote its active role in national politics and government. A significant issue is the establishment of a proper meaning for the term “rule of law,” which currently is unclear; however, a number of points have already been identified for defining the rule of law.**

1.1 The universal meaning of the rule of law refers to this principle as a mechanism for controlling government power with the aim of creating a just procedure or structure for the public that is

based on peace, democracy, and freedom. However, owing to economic changes in Thai society, the rule of law cannot be limited to the government’s power only, but it is also applicable to operations in civil society, private development organizations, and multinational corporations, as well as any person in business.

1.2 The meaning of the rule of law was defined by Thai academics in the Constitution of the Kingdom of Thailand, B.E. 2550 (2007), the country’s first constitution that clearly legislated for the rule of law, both in its general provisions and in the directive principles of fundamental state policies. These elements reflect the concept of the rule of law as controlled by law, not by individual humans. It is an agreement which regulators, users, and the general public need to follow.

1.3 The rule of law as defined by the government can be divided into two categories: the first is the strict concept dealing with judicial administration: for example, the broad use of the law and its level of transparency. The second is the broad concept dealing with law idealistically and with judicial administration: for instance, laws should be clear, justified and up to date.

**2. The authors studied the procedure of the World Justice Project (WJP) for developing a**

**rule of law index and related indicators, which is aimed at promoting the development of the rule of law in a large number of countries. As a result, they prepared a summary as follows:**

2.1 With regard to the WJP conceptual framework, the Project in 2015 surveyed 102 countries around the world, dividing the subjects into two groups: one of 100,000 comprising representatives of the general public and the other, 2,400 specialists in those countries. There are nine indicators demonstrating different aspects of the rule of law in a society: constraints on government powers; absence of corruption; open government; fundamental rights; order and security; regulatory enforcement; civil justice; criminal justice; and informal justice. It should be pointed out that informal justice is not included among the WJP indicators.

2.2 There are three important parts to the WJP procedure; they involve the collection of data in survey form consisting of opinions of the general public and specialists. For the general public, 87 opinion questions and 56 direct experience questions were used in the survey. The survey is collected from approximately 1,000 people every two years. Quota sampling is in accordance with the statistical principle which compares the quality with the details of data and the survey budget. WJP calls for the sample population to be taken from the three largest cities in a country. For Thailand, the data are from Bangkok, heavily urbanized Nonthaburi Province, and Pakkret District in Nonthaburi Province. As for the specialists, they are composed of 25 specialists from a country's civil and commercial law sectors; the criminal law sector; the labour law sector; and the public health sector. Closed-ended perception questions and questions on hypothetical situations with highly detailed factual assumption are used in obtaining their opinions. The indicator rating scale begins by cutting off suspicious data, after which the answers are given a standard score and normalized. Each answer to the questions is rated with a score between 0 and 1; a "0" score means the least adherence to the rule of law and a score of "1" indicates clear application of the rule of law. All scores are arranged in accordance with 44 sub-indicators under 8 of the 9 main indicators.

Average scores are calculated for the indicators; during this stage, the reliability of the calculated scores are evaluated by utilizing secondary data in terms quantity and quality. The data which are different are scrutinized further for cause, and the data which are similar are compared for accuracy.

2.3 There are advantages and disadvantages to the WJP Index and related indicators. Disadvantages include the collection of data. WJP specifies that the sample population live in three large cities, so this methodology cannot reflect the rule of law in an entire country or consider the diversity of judicial administration in a country. In addition, the research team cannot contact the WJP team to obtain more information; thus, the researchers cannot fully assess the collection of data. Another disadvantage is related to the types of questions; most of the questions inquire about private opinions, which may result in bias among the interviewees. Moreover, the language used in the questions is not always neutral and thus may also affect the interviewees' feelings. An advantage of the index and the indicators is apparent in the score evaluation process, which is an effective method for evaluation by weighting the proportions of the 1,000 members of the general public and the 25 specialists, as the specialists have more direct experience than the general public. However, if there are small numbers of specialists in a country, there is still concern that this may lead to bias.

2.4 In order to develop the WJP Index and related indicators, four aspects must be considered: (a) because there is no question that can reflect every aspect of the rule of law concept, it is necessary to divide each question into multiple questions to cover every aspect of the rule of law; (b) questions should be asked from the perspective of the various backgrounds and careers of the interviewees to cover the overall sample population; (c) the indicators should be detectable by using secondary data; and (d) many indicators have a margin of error and thus when detected may lead to sub-indicators merging into other indicators.

2.5 With regard to recommendations for developing a rule of law index and related indicators for Thailand, existing indicators can be applied

for calculation instead of collecting new data. For example, the 11-aspect Human Security Index of the Ministry of Social Development and Human Security is similar to the WJP Absence of Corruption Indicator and Order and Security Indicator. While the Social Index contained in the five-year National Economic and Social Development Plan of the Office of the National Economic and Social Development Board is similar to the WJP Order and Security Indicator, the Corruption Index of the University of the Thai Chamber of Commerce is similar to the WJP Absence of Corruption Indicator, and the Social Justice Index of Thammasat University is similar to the WJP Fundamental Rights Indicator and Criminal Justice Indicator.

**3. As for the rule of law-related index and indicators in Thailand retrieved by internal and external organizations, the authors concluded that each index was developed for its own purpose, resulting in various conceptual frameworks, and different types of methods for data collection, sampling, and presentation. Each index has its specific objectives which are different from others; therefore, it is not appropriate to apply just any of the various indices as part of the rule of law index assessment. However, the authors have compiled a significant collection of information on indices.**

3.1 In respect of external organizations, there are a number of indices: (a) the WJP Rule of Law Index and related indicators; (b) the Rule of Law Index of the Millennium Challenge Corporation in the United States of America, which is aimed at eliminating poverty, especially in underdeveloped and developing countries; (c) the Rule of Law Index of the Heritage Foundation, an independent research institution which promotes public policy; (d) the Rule of Law Index of the World Economic Forum, an independent institution, the purpose of which organization is to develop and enhance countries' competency; (e) the Corruption Index of Transparency International, an independent institution, which targets corruption, and promotes transparency, responsibility, and sincerity; (f) the Freedom in the World Index of Freedom House,

an independent institution which tries to promote peace and political rights, protect human rights, and support democracy; (g) the Worldwide Governance Indicators of the World Bank, the objective of which is to promote investment for increasing production and accelerating economic growth; (h) the Prosperity Index of Legatum, a charity organization which promotes prosperity; (i) the Transformation Index of the Bertelsmann Foundation, a non-profit organization which promotes research, and supports personal freedom; and (j) the World Competitiveness Yearbook Index of the International Institute for Management Development, an institute which works to develop leadership among individuals, working groups, and organizations.

3.2 There are a number of internal organizations with similar indices: (a) the Human Security Index of Thailand's Ministry of Social Development and Human Security, a ministry which tries to promote human security; (b) the Social Index of the Office of the National Economic and Social Development Board, which is aimed at promoting social security; (c) the Corruption Index of the University of the Thai Chamber of Commerce, which is aimed at surveying and strategically evaluating the severity of corruption, people's attitudes and consciousness; and (d) the Social Justice Index of Thammasat University, which is aimed at narrowing social gaps and fighting against corruption.

**4. With regard to the Sustainable Development Goals (SDGs) and comparison of the SDGs and the rule of law indicators, the authors analyzed and evaluated the indicators in two parts: the first concerns the relationship between the rule of law and the SDGs; the second covers SDG Goal 16 on the rule of law as reported in the *United Nations Sustainable Development Goals Report 2016* as follows:**

4.1 The rule of law will promote sustainable development in the following ways: (a) any of the rule of law indicators can promote economic growth and development; (b) adherence to the rule of law can stimulate economic and social fairness; (c) adherence to the rule of law can eliminate and prevent conflict, crimes, and violence within a com-

munity; (d) adherence to the rule of law can foster social responsibility and the balance of power, and reduce corruption; and (e) adherence to the rule of law can lead to the protection of natural resources and environment, which are the fundamental core of sustainable development.

4.2 As for a comparison of the indicators, the SDG sub-indicators that have the rule of law as a fundamental element are related to seven goals: (a) Goal 8, which promotes sustained, inclusive and sustainable economic growth, is aimed at achieving increased productive employment and decent work for all; (b) Goal 10 is aimed at reducing inequality both nationally and internationally; (c) Goal 13 calls for taking urgent action to combat climate change and its impacts; (d) Goal 14 is aimed at conserving and sustainably using the oceans, seas, and marine resources for sustainable development; (e) Goal 15 calls for protecting, restoring and promoting the sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, halting and reversing land degradation, and halting biodiversity loss; (f) Goal 16 is aimed at promoting peaceful and inclusive societies for sustainable development, providing access to justice for all and establishing effective, accountable and inclusive institutions at all levels; and (g) Goal 17 calls for strengthening the means of implementation and revitalizing the global partnership for sustainable development. In effect, the most important SDG is Goal 16 as there are 12 relevant sub-indicators (with a 100 percent match), while Goal 15 comes in second as there are 7 relevant sub-indicators (with a 58 percent match), and the third is Goal 8, for which there are 5 relevant sub-indicators. A clear example of promoting sustainable development and the rule of law in Thailand is through the Universal Health Care Coverage Project.

## **5. The authors synthesized the conceptual and strategic framework of the rule of law for Thailand as follows:**

5.1 In respect of the conceptual framework, there are positive connections between the rule of law and sustainable development, as it will help in promoting the implementation and maintenance of

the rule of law in Thailand. In this regard, its nine indicators are flexible enough to serve as the minimum standard for rule of law assessment. As a result, Thailand may have to add additional indicators: (a) ex-post legislated corporate governance mechanism; (b) public participation; (c) hospitality principle; (d) economic and social gaps; and (e) public peacefulness.

5.2 As for the strategic framework, Thailand should develop its index and related indicators within a period of 10 years, and the indicators should be transparent and legitimately valid. The relevant organizations can follow the proposed strategic framework and promote the rule of law in Thailand as follows:

(a) Put into operation a working group consisting of representatives from the public and private sectors, and civil society organizations, with the Thailand Institute of Justice (Public Organization) functioning as a secretariat;

(b) In the short term, Thailand may select some of the indicators, such as absence of corruption, order and security, regulatory enforcement, civil justice, and criminal justice. Thereafter, it may consider adding indicators in accordance with the national situation;

(c) With regard to the WJP statistical methodology, its primary data are obtained from expressions of public opinion, however, this method may not be appropriate for Thailand because of public biases. Thailand should apply primary data from public opinion and secondary data from national organizations;

(d) Types of questions and population sampling can elicit personal and critical opinions or direct experience by adapting them in accordance with the society being surveyed. This approach would lead to the classification of three groups: specialists, the general public and the direct experiences of experts. The sampling would be calculated in accordance with Yamane's formula ( $n=N/(1+N(e)^2)$ );

(e) The statistical calculation may begin with general weighting by giving equal weight to each indicator, meaning that this index value is simple and it is the proper starting point.