



## The Political Economy of UHC Reform in Thailand: Lessons for Low- and Middle-Income Countries

Viroj Tangcharoensathien, Walaiporn Patcharanarumol, Anond Kulthanmanusorn, Nithiwat Saengruang & Hathairat Kosiyaporn

To cite this article: Viroj Tangcharoensathien, Walaiporn Patcharanarumol, Anond Kulthanmanusorn, Nithiwat Saengruang & Hathairat Kosiyaporn (2019) The Political Economy of UHC Reform in Thailand: Lessons for Low- and Middle-Income Countries, Health Systems & Reform, 5:3, 195-208, DOI: [10.1080/23288604.2019.1630595](https://doi.org/10.1080/23288604.2019.1630595)

To link to this article: <https://doi.org/10.1080/23288604.2019.1630595>



Published with license by Taylor & Francis Group, LLC. © 2019 The Authors.



Published online: 13 Aug 2019.



Submit your article to this journal [↗](#)



Article views: 11149



View related articles [↗](#)








View Crossmark data [↗](#)



Citing articles: 26 View citing articles [↗](#)

## Research Article

# The Political Economy of UHC Reform in Thailand: Lessons for Low- and Middle-Income Countries

Viroj Tangcharoensathien , Walaiporn Patcharanarumol \*,  
Anond Kulthanmanusorn , Nithiwat Saengruang , and Hathairat Kosiyaporn   
International Health Policy Program (IHPP), Ministry of Public Health, Nonthaburi, Thailand

## CONTENTS

### Introduction

### Health Delivery Systems Context

### Incremental Policy Evolution and the Generation of Path Inefficiencies

### Universal Coverage Scheme: The Political Economy of Reforms

### Discussion

### Conclusion

### References

Keywords: path dependence, political economy, reform, Thailand, UHC

Received 22 April 2019; revised 8 June 2019; accepted 8 June 2019.

\*Correspondence to: Walaiporn Patcharanarumol; Email: [Walaiporn@ihpp.thai-gov.net](mailto:Walaiporn@ihpp.thai-gov.net)

Color versions of one or more of the figures in the article can be found online at [www.tandfonline.com/khsr](http://www.tandfonline.com/khsr).

© 2019 The Authors.

This is an Open Access article distributed under the terms of the Creative Commons Attribution 3.0 IGO License (<https://creativecommons.org/licenses/by/3.0/igo/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way. This article shall not be used or reproduced in association with the promotion of commercial products, services or any entity. There should be no suggestion that the World Health Organization (WHO) endorses any specific organization, products or services. The use of the WHO logo is not permitted. This notice should be preserved along with the article's original URL. Disclaimer: The authors alone are responsible for the views expressed in this article and they do not necessarily represent the views, decisions or policies of the institutions with which they are affiliated.

**Abstract**—Thailand achieved full population coverage of financial protection for health care in 2002 with successful implementation of the Universal Coverage Scheme (UCS). The three public health insurance schemes covered 98.5% of the population by 2015. Current evidence shows a high level of service coverage and financial risk protection and low level of unmet healthcare need, but the path toward UHC was not straightforward. Applying the Political Economy of UHC Reform Framework and the concept of path dependency, this study reviews how these factors influenced the evolution of the UHC reform in Thailand. We highlight how path dependency both set the groundwork for future insurance expansion and contributed to the persistence of a fragmented insurance pool even as the reform team was able to overcome certain path inefficient institutions and adopt more evidence-based payment schemes in the UCS. We then highlight two critical political economy challenges that can hamper reform, if not managed well, regarding the budgeting processes, which minimized the discretionary power previously exerted by Bureau of Budget, and the purchaser–provider split that created long-term tensions between the Ministry of Public Health and the National Health Security Office. Though resisted, these two changes were key to generating adequate resources to, and good governance of, the UCS. We conclude that although path dependence played a significant role in exerting pressure to resist change, the reform team's capacity to generate and effectively utilize evidence to guide policy decision-making process enabled the reform to be placed on a “good path” that overcame opposition.

## INTRODUCTION

Thailand is often referenced as a success case in achieving UHC with favorable outcomes,<sup>1</sup> including improved access to health services, low levels of unmet healthcare needs,<sup>2,3</sup> and a high level of financial risk protection<sup>4</sup> as measured by low levels of household out-of-pocket payment for health at

11.8% of current health expenditure in 2015.<sup>5</sup> Likewise, the prevalence of catastrophic health expenditure, measured by more than 10% of household expenditure, reduced from

7.1% in 1990 to 2.1% in 2016 (Figure 1) and impoverishment, using the national poverty line, also reduced from 2.3% to 0.3% in the same period<sup>6</sup> (Figure 2). Health service

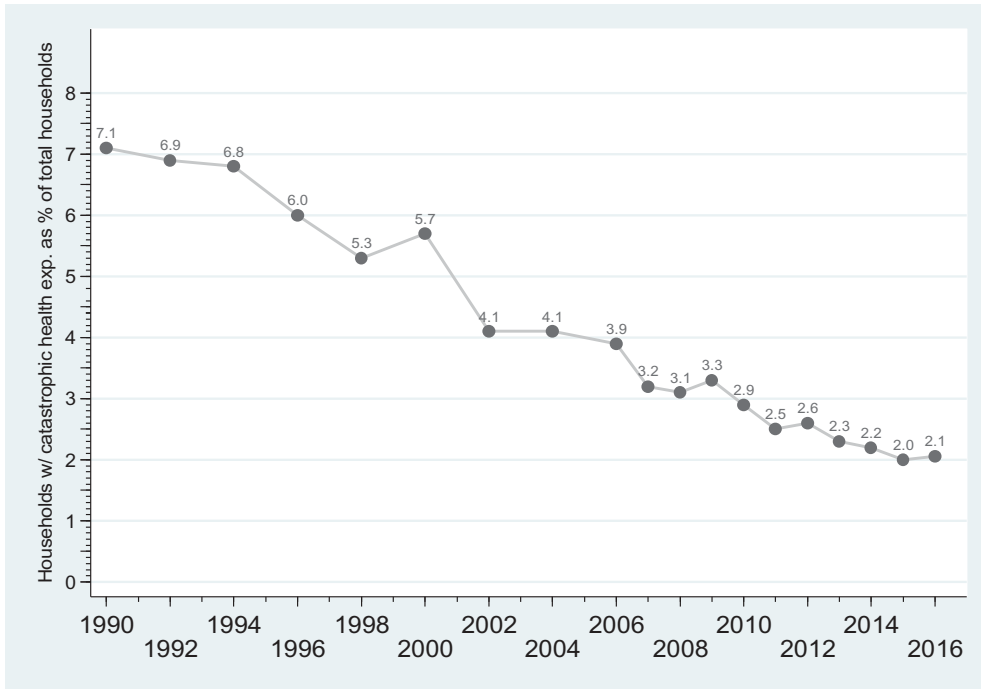


FIGURE 1. Trend of Prevalence of Catastrophic Health Expenditure (>10% Total Consumption), 1990-2016

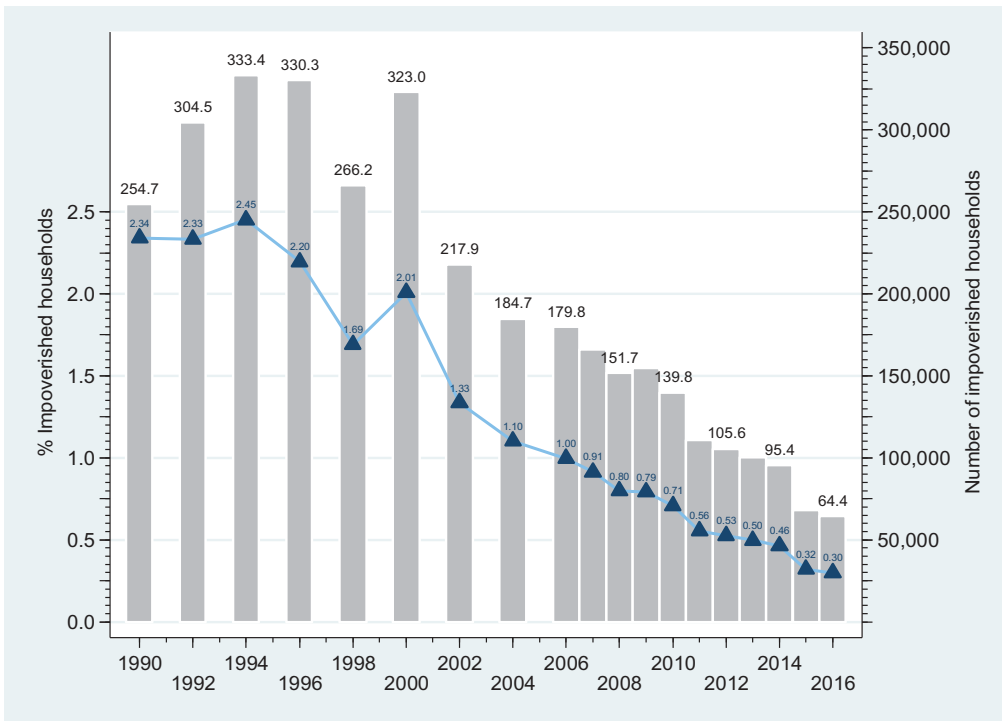


FIGURE 2. Trend of Impoverishing Health Expenditure, 1990–2016  
 Impoverishment is defined as consumption net of health expenditure < National Poverty Line

utilization and benefit incidence have also been predominately pro-poor, especially in the District Health Systems (DHS).<sup>7</sup> The DHS consists of a network of 10–15 health centers and a district hospital serving a catchment population of 50,000 in a typical district. The geographical proximity and people's trust<sup>8</sup> in the quality of services at DHS contribute to these pro-poor outcomes.

The availability and extensive geographical coverage of service delivery, health professional's ethos in serving the public and a comprehensive benefit package where there is no copayment at point of service<sup>9</sup> contribute to the country's favorable UHC outcomes. Thailand's health system is publicly dominated where the for-profit private sector has a smaller role. In 2014, 67% of the country's 161,000 hospital beds were Ministry of Public Health (MOPH) facilities, 14% were other non-MOPH facilities, while only 19% were private hospitals. In 2015, the private sector contributed to 14% of total outpatient visits, 9% by private clinics and 5% by private hospitals, and 11.3% of total admissions.<sup>9</sup>

How Thailand successfully adopted and implemented UHC with good outcomes provides potential lessons for low- and middle-income countries in their quests for UHC. The paper first argues that the early expansion of a strong public primary health care (PHC) system in Thailand set the foundation for future scale-up of UHC. In spite of this foundation, early insurance coverage expansions took an incremental approach, covering separate risk pools and using different payment models. In trying to integrate these separate pools and expand universal coverage in 2002 in line with evidence-based guidance on what finance/payment arrangements are the most efficient, there was resistance from those who stood to lose autonomy and authority from the reforms.

The paper argues that path dependence stemming from the contextual environment coupled with political economy factors related to competing interests influenced the design and implementation of the Universal Coverage Schemes (UCS) in 2002. Path dependence explains how the set of decisions faced for any given policy reform is limited by the decisions made in the past, which can often lead to the persistence of ineffective and inefficient policies.<sup>10,11</sup> Although UHC designs were facilitated by several choices which were adopted early in the reform process that later facilitated future expansions, this paper highlights how evidence contributed to UCS design choices that were able to overcome certain "path inefficiencies" generated by previous policy choices, which has allowed further advanced steps in achieving health systems goals of efficiency, equity, and quality of care. The paper points to the importance of early decisions given their "stickiness" over time and the sources of conflict they can lead to in the future, but also the potential strategies for reform.

## HEALTH DELIVERY SYSTEMS CONTEXT

Early investments in health system infrastructure served as a foundation on which to build UHC in the future. Four decades of investment in health systems infrastructure by the MOPH between the 1970s and 2000s aimed to achieve full geographical coverage of district level healthcare delivery infrastructure. Rural health development was adopted in response to communism's infiltration of the rural, poor area of Thailand during the Indo-China war in the 1960s.

By 2000, the MOPH had reached its goal of full geographical coverage. A health center in all sub-districts serves some 5,000 individuals per catchment area and a district hospital serves 50,000 district populations.<sup>8</sup>

In parallel to infrastructure extension, Thailand implemented policies<sup>12</sup> such as rural recruitment of students from remote areas into medical and nursing education, hometown placement for those who were recruited from their home towns, and three-year mandatory service in district hospitals for medical, dental, and pharmaceutical graduates from all public universities since the 1970s. Other parallel financial and non-financial incentives include professional career advancement, social recognition and a penalty for non-adherence to support rural retention.<sup>13</sup>

The full geographical coverage of the health delivery system was reflected in the high level of service coverage even prior to UHC. In 2000, 99.3% of births were attended by skilled personnel; 97% and 94% of children under five years old were covered by DTP3 and measles vaccine, and there was a 79% contraceptive prevalence rate.<sup>14</sup>

## INCREMENTAL POLICY EVOLUTION AND THE GENERATION OF PATH INEFFICIENCIES

While a strong public PHC system served as the foundation on which to build universal coverage on equitable grounds, incremental expansion of insurance coverage to different risk pools with varying payment systems has contributed to persistent fragmentation in the health financing system. This fragmentation stems from the targeted, incremental approach to insurance coverage expansion that Thailand undertook, spanning several decades.<sup>15</sup>

Prior to the adoption of UCS, low-income households had been covered by publicly subsidized free health care since 1975 through the Low Income Scheme managed by MOPH. Under the Low Income Scheme, household income was assessed to determine eligibility. The Low Income Scheme was later extended to children under 12 years, elderly (>60 years old), persons with disability and village health volunteers, regardless of their income status. The MOPH applied a "public integrated model"<sup>16</sup> which served both functions of payer and healthcare

provider. While the MOPH was responsible for the public-integrated model, which had advantages from an efficiency standpoint by using the existing organization with no need to establish a new one, it was considered to be less responsive to the needs of the people and tended to have long wait times.<sup>17</sup>

Meanwhile, government employees and their dependents have historically been covered by a non-contributory tax-financed scheme, called the Civil Servant Benefit Scheme (CSMBS), as part of a comprehensive welfare scheme aiming to compensate their lower salary as compared with the private sector. The CSMBS employs a “public reimbursement model”<sup>17</sup> where the Comptroller General Department reimburses healthcare providers for outpatient and inpatient services they provide to CSMBS members, based on a fee-for-service payment model. This payment model has led to significant cost escalation in this scheme. CSMBS always overspent their annual budget allocation. Its per capita CSMBS expenditure was four times higher than UCS.<sup>9</sup>

Private sector employees (excluding dependents) form yet another pool and are covered by a payroll-tax financed social health insurance (SHI) scheme, launched in 1990, as part of a comprehensive social security reform that included pensions and unemployment benefits. The SHI applies a “public contract model”<sup>17</sup> where the Social Security Office is the purchaser of services, and qualified public or private hospitals (such as more than 100 beds and other quality requirements) are providers of health services based on an annual capitation fee that covers outpatient and inpatient services. (Capitation is a fixed per capita member payment that is unlinked from the number and types of services provided, made periodically to the contractor provider network by NHSO in return for outpatient services provided to the enrolled individuals.) SHI members are required to register with a hospital of their choice.<sup>18</sup> In the public contract model, purchaser and provider functions are the responsibility of two separate agencies. The efficiency and cost containment capacity of this model informs the design of UCS.<sup>19</sup>

Finally, prior to UCS, the informal sector was covered by voluntary premium-financed public insurance launched in 1984 by the MOPH, and later 50% of the premium per household was subsidized by the government in 1992.<sup>20</sup> This public voluntary health insurance scheme was also managed by MOPH using a “public integrated model,” where the MOPH served as both payer and provider. It faced similar challenges to the Low Income Scheme in terms of low levels of responsiveness.

Despite these incremental efforts to expand coverage to different population groups, UHC was not achieved. By 2001, 30% of total population remained uninsured. It took

Thailand 27 years from the 1975 first launch of the Low Income Scheme to 2002 to achieve UHC. Following the implementation of the UCS, the whole population of 67 million would be covered by one of the three public health insurance schemes. While the Low Income Scheme and voluntary health insurance programs were successfully replaced and integrated under UCS, which also covered the 30% uninsured population, the CSMBS continues to cover government employees, retirees and dependents below 20 years old including their parents and a spouse, and SHI covers private sector employees (excluding dependents) and the remaining populations are covered by UCS. These are managed by three different agencies, namely Ministry of Finance, Ministry of Labor and National Health Security Office, respectively. The continued fragmentation of the system across these three schemes managed by different agencies is a remnant of the political climate and bureaucratic politics in 2001–2002, which impeded the ability to merge these separate plans into a single scheme. Bureaucratic politics is defined as internal bargaining within the state for a given set of public policies. The continued fragmentation of the health coverage system reflects the path dependence of these prior incremental expansions of population coverage, which proved resistant to subsequent reform.

However, in other respects, the reform team was able to overcome opposition and adopted a generous benefit package and a more efficient payment model for the UCS. While the CSMBS had a more favorable benefit package than the Low Income, SHI and voluntary health insurance schemes, the benefit package applied by all of these early insurance schemes was comprehensive and included outpatient services, inpatient services, medicines and certain high-cost interventions, using a negative list approach. This means all interventions are covered except a few items in the “negative list.” The generous benefit package in these early insurance schemes set precedence for a comprehensive package for the UCS in the 2002 reform. Adopting a less generous benefit package than these schemes offered would not have been politically palatable.

Similarly, adoption of a more efficient payment system for UCS was guided by the experiences, both positive and negative, of the three existing models (the public-integrated model used by the Low Income Scheme, the public voluntary health insurance model; the public reimbursement model based on fee-for-service used by CSMBS; and the public contract model based on capitation used by SHI). The experiences with these schemes offered invaluable lessons for the design of UCS. Specifically, they influenced the bold decision for UCS to adopt a public contract model with

several advanced design features such as age-adjusted capitation for outpatient services and Diagnostic Related Group payment within an annual global budget for inpatient care. The adoption of this payment scheme was based on the evidence of the improved cost containment from the SHI experience as compared with the CSMBS experience.

Path dependence therefore operated in several ways to both facilitate UHC through a firm bedrock of PHC as well as to hinder reform efforts through the entrenchment of three separate risk pools that proved resistant to change due to bureaucratic politics. However, the national capacity to generate compelling evidence on the weaknesses of the fee-for-service CSMBS public reimbursement model and its inefficiency and cost escalation and capacity to translate this evidence into policy decisions was key to the decision to reject this “wrong” path inefficiency, and instead follow an SHI public contract model. To date, 17 years after UCS was launched, the SHI and CSMBS designs continue their own path dependency of separate risk pools, which demonstrate the persistent power of bureaucratic politics.

## **UNIVERSAL COVERAGE SCHEME: THE POLITICAL ECONOMY OF REFORMS**

Evidence, analysis, and observations in this section were drawn from the authors (VT and WP) who were eyewitnesses in the reform processes and active members of the UHC team. The authors assessed stakeholders’ roles and positions in relation to various decision options based on the conversations, deliberations, and discourses they publicly made. The reform team consisted of senior officials in the MOPH led by the Permanent Secretary, groups of academia and civil society organizations.

### **Key Stakeholders at the 2001–2002 Reform**

This section analyses how the health reform team managed this tumultuous process and achieved a number of socially progressive, evidence-based reforms. UHC was the political manifesto of the January 2001 election campaign.

The government had committed itself to generating an additional 30 billion Baht (1 billion USD) in order to cover 47 million UCS members through general tax revenue rather than premiums and to adopt a comprehensive benefit package applied by the previous public welfare schemes. Yet, the fiscal context in 2002 when Thailand had not fully recovered from the 1997 Asian economic crisis and with a Gross National Income of 1,990 USD necessitated a cost containment model using closed-ended provider payment. To achieve this, strong leadership in conflict resolution and

local capacity in generating evidence for informed decisions were contributing factors to a smooth UCS transition, though there were various tensions across stakeholders. The key actors in the transition to UHC and their responsibilities are identified and categorized by group in Table 1.

### **Stakeholders’ Different Positions on UCS Policies and Designs**

As eye-witnesses and active members of the UHC reform team, we analyzed the political economy dimensions related to how a number of key policy and implementation questions were deliberated and disputed, where some issues reached and some issues did not reach consensus among stakeholders around 2001–2002 when UCS was launched.<sup>21</sup> As not all detailed content related to UCS reform can be covered by this paper, four key areas of political tension are prioritized in Table 2. The table analyzes the conflicting positions and tensions among stakeholders who were supportive and not supportive of certain UCS designs and decisions.

The next two sections highlight two examples that demonstrate political economy tensions (budgetary politics and bureaucratic politics) underlying the adoption of evidence-based reforms.

### **Budgetary Politics: A Major Shift from Program-based to per Capita Budget**

Budgetary politics is part of the bureaucratic politics where different state actors negotiate over budget allocation. The annual UCS per-capita budget process was a major shift from the traditional bilateral negotiation with the Bureau of Budget that the MOPH and all other ministries had previously used. For example, where the Disease Control Program was the responsibility of the Department of Communicable Diseases Control; Provincial, District and Sub-district Health Service Programs were the responsibility of the Permanent Secretary Office. Under each program, there are budget line items such as salary and wages, operations, public utilities, subsidies, and capital investment. The long process of bilateral negotiation for each budget line in each project of each Program opened space for the Bureau of Budget to exercise its discretionary power creating an unequal footing between the two negotiators. Discretionary power can lead to corruption. A compelling formula was proposed by Klitgaard of “Corruption = Monopoly + Discretion – Accountability.”<sup>29,30</sup>

To address the problems with the prior budget-setting process, reformists proposed an annual budget request based on utilization rates of different benefit packages and their related unit cost. Efforts were made to make this a transparent process that involved stakeholders and

**A. The politicians (politician politics)**

1. The ruling parties who promised UHC in the 2001 general election who had interests to gain political support in next elections;
2. The opposition parties who also have keen interest to gain political support for the next elections.

**B. The bureaucrats (bureaucratic and budgetary politics)**

3. The MOPH who managed the low-income scheme and the voluntary public health insurance scheme, and had lost this territory to the NHSO.
4. The Social Security Office which implements the SHI, where UCS had taken its voluntary SHI membership in accordance with Article 40 of the 1990 Social Security Act.
5. The Comptroller General Department of Ministry of Finance where the CSMBS fee-for-service provider payment can be threatened by closed-end payment by UCS.
6. The Budget Bureau which handled “Program Budget” and negotiation process with MOPH prior to UCS can be threatened by the UCS annual budgeting processes.

**C. The reformists, and their like-minded groups and alliances (leadership politics)**

7. The reformists in the MOPH who had been involved in the designs of capitation model of SHI<sup>27</sup>, assessment of strengths and weaknesses of different schemes, have a strong position of safeguarding public interests;
8. Members of Civil Society Organizations and health advocates such as HIV/AIDS, Consumer Protection Foundation, the Rural Doctor Society and other independent active citizens who stand firm for public interests.
9. Health systems and policy researchers generated evidence on strengths and weaknesses of different provider payment methods, model of relationship between insurance fund and health care providers such as public reimbursement, public integrated and public contract models. These researchers also involved with prior health systems reforms.

**D. The healthcare providers (interest group politics)**

10. The public healthcare providers in district and provincial hospitals whom can be affected by significant increased workload;
11. The private healthcare providers represented by the Private Hospital Association where their market share could be affected by UCS comprehensive benefit package;
12. The medical professional represented by the vocal Thailand Medical Council.

**E. The industries (interest group politics)**

13. Pharmaceutical industries, the Pharmaceutical Research and Manufacturers Association—PREMA, represents the international pharmaceutical industries producing brand products who had benefits from fee for service CSMBS payment, and the Thailand Pharmaceutical Manufacturers Association—TPMA represents the locally produced generic medicines who benefits from the large consumption of generic medicines under capitation and DRG payment.
14. The private health insurance industries who may lost their private health insurance coverage;

**TABLE 1.** Grouping of Stakeholders by its Political Characteristics, their Responsibilities and Potential Consequences from UCS

evidence to make budget estimates. The three parameters that are used to estimate the per-capita budget (use rate, unit cost, and target population) are peer reviewed and agreed based on consensus, by a multi-stakeholder Budgeting Sub-committee appointed by the National Health Security Board. This process was instrumental in enabling transparent budgeting, where the Bureau of Budget of the Ministry of Finance became one among numerous other members such as representative of public hospitals, private hospital associations, academia and NGOs, who together were required to verify the evidence and approve the estimates. This new process led to increased transparency and good governance. The Bureau of Budget could no longer exercise its discretionary power, because of the use of concrete evidence to guide budgetary estimates and transparent processes. Though initially generating significant tensions, we witnessed a smooth reform of budgeting processes.

The success of this reform is confirmation that evidence-based participatory budgeting processes can be achieved, although the Cabinet did not always approve the proposed annual budget due to GDP growth, level of tax and revenue collection, fiscal constraints and other sectors competing for the finite budget in each fiscal year (see [Figure 3](#) on per capita budget requested and approved between 2002 and 2019). Civil Society Organizations have continued to monitor the budgeting processes and budget figures closely and have made it an issue in the public media when the budgetary gap was large.

**Bureaucratic Politics: Purchaser–Provider Split and the Long-term Tension between MOPH and NHSO**

In addition to tensions over budget reform, there was a substantial political tension over the governance of UCS. The purchaser–provider split is a governance model of the relationship between insurance funds and health facilities, in

Key issues	Supportive	Not supportive	Final decision	Context during 2001 and 2002
<b>I. Population coverage</b>				
1. Thai citizen coverage	<ul style="list-style-type: none"> <li>Politicians, reformists and CSO advocate all citizens' entitlement to health services in accordance with Article 52 of the 1997 Constitutional.<sup>37</sup> The state has constitutional mandate to ensure right to health services by all citizen.</li> </ul>	<ul style="list-style-type: none"> <li>Academia, private healthcare providers, private insurance companies, Democrat Party were in favour that the rich pays their own healthcare or covered by private insurance. Government should be responsible for the poor, not the rich.</li> </ul>	<ul style="list-style-type: none"> <li>Universal entitlement to health services by all Thai citizens.</li> </ul>	<ul style="list-style-type: none"> <li>Political promise for UHC in January 2001 general election</li> </ul>
2. Non-Thai population coverage	<ul style="list-style-type: none"> <li>Reformists and CSO supported UHC for everyone on Thai soil. As public health intervention such as TB, infectious and vaccine preventable diseases to non-Thai migrants ensures health security to host communities. Migrant workers contributed to the Thai economy, and paid indirect consumption tax.</li> </ul>	<ul style="list-style-type: none"> <li>The conservative bureaucrats, the Council of State, legislative bodies and private providers were in favour of non-Thai pay their own medical bills. The social discourses were afraid of migrant influx due to full health coverage.</li> </ul>	<ul style="list-style-type: none"> <li>Non-Thai are not covered by UCS, later the stateless people are coverage by state budget outside UCS systems<sup>23</sup> and foreigners are covered by voluntary public health insurance managed by MOPH</li> </ul>	<ul style="list-style-type: none"> <li>The problem streams of infectious disease, high incidence of MDR TB and health threats from non-Thai to host community were not well documented and publicized to shape the public opinion and form political position on this issue.</li> </ul>
<b>II. Financing, budgeting</b>				
3. Financing source	<ul style="list-style-type: none"> <li>Reformists and CSO advocated tax as the most progressive source to finance UCS. Health Minister realized it not possible to achieve UHC in a year if UCS is financed by premium contribution. Collecting premium and full enforcement are technically difficult and politically non-palatable.</li> </ul>	<ul style="list-style-type: none"> <li>Social Security Office concerned of inequity as the SHI members were double taxed. First 1.5% payroll tax (plus equal share by employers and government) for SHI, second, personal income tax and consumption tax into the overall government revenue; while UCS members only pay consumption tax.</li> </ul>	<ul style="list-style-type: none"> <li>Prime Minister decided on general tax-financed UCS through annual budget negotiation and approval. Subsequent National Health Security Act was adopted by the Parliament endorsing general tax as a major source.</li> </ul>	<ul style="list-style-type: none"> <li>Political promise of UHC in a year, technically not feasible to collect premium. The "not very large" additional budget requirement, 30 billion THB (1 billion USD) is within the Prime Minister's capacity to mobilize.</li> <li>SSO failed to cover the dependents of SHI and the informal group through voluntary SHI membership according to Article 40 of the 1990 Social Security Act.</li> </ul>

(Continued on next page)

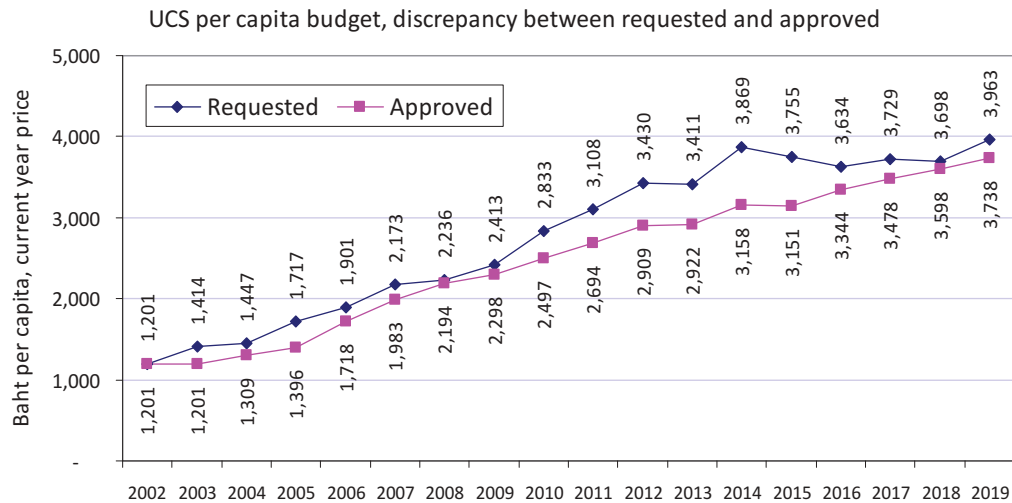


Key issues	Supportive	Not supportive	Final decision	Context during 2001 and 2002
4. Copayment policies	<ul style="list-style-type: none"> <li>Reformists advocated fix copayment of 30 Baht (1 USD) per visit or admission with exemption to the poor. Copayment as percentage of medical bills can be catastrophic to household for certain high cost conditions such as cancer requiring chemotherapy or major surgeries.</li> </ul>	<ul style="list-style-type: none"> <li>Providers advocate copayment, 10–30% of the medical bill.</li> </ul>	<ul style="list-style-type: none"> <li>A fix copayment of 30 Baht was introduced with exemption of the poor (who are previously covered by Low Income Scheme).</li> </ul>	<ul style="list-style-type: none"> <li>Political decision is convinced to the argument that copayment as percentage of medical bill for certain clinical conditions can be catastrophic to households.</li> <li>Copayment which discourages patients' moral hazard is unnecessary as closed end provider payment suppress moral hazard from the providers' perspective.</li> </ul>
5. Budgeting	<ul style="list-style-type: none"> <li>Reformists proposed annual budget request based on utilization rates of different benefit package and its related unit cost; with a transparent process involving stakeholders in the budget negotiation with the Bureau of Budget.</li> <li>The ruling party was in favour of a "hard budget" for UCS which was predictable and ensured fiscal discipline.</li> </ul>	<ul style="list-style-type: none"> <li>The Budget Bureau is not in favour of the budgeting process, as it had lost budgeting control. Prior to UCS, it is the bilateral negotiation between MOPH and the Budget Bureau on an unequal footing. At time, the Budget Bureau can exercise its "discretionary power" of approval and not approval certain items in the program budget.</li> </ul>	<ul style="list-style-type: none"> <li>Per-capita budget was based on utilization rate, unit cost and number of UCS members and convened by Budget Subcommittee on a transparent manner.</li> </ul>	<ul style="list-style-type: none"> <li>CSMBS fee for service payment results in overspending which was compensated by contingent budget earmarked for emergencies, drought or flood.</li> </ul>
<b>III. Strategic purchasing</b>				
6. Benefit package	<ul style="list-style-type: none"> <li>Reformists and CSO advocated comprehensive benefit package with a few negative list for exclusion. Also cover medicines in the National List of Essential Medicine (NLEM). New medicine or interventions to be included in the benefit package were subject to rigorous Health Technology Assessment (HTA).</li> </ul>	<ul style="list-style-type: none"> <li>Leading clinicians are not in favour of using NLEM, claiming "clinical freedom" to use any medicines or interventions; NHSO should not impose HTA. These arguments supported the position by Pharmaceutical Research and Manufacturers Association (PREMA).</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive benefit package with negative list and later on with certain positive lists such as cost-effective medicines and interventions.</li> </ul>	<ul style="list-style-type: none"> <li>Path dependence prevails as the benefit package applied by the Low Income Scheme and the public subsidized voluntary health insurance are comprehensive including medicines.</li> <li>Thailand has never applied basic minimum package, though the contra-reform groups proposed tier package, namely basic package for all citizens and additional package for CSMBS and SHI.</li> </ul>

*(Continued on next page)*

Key issues	Supportive	Not supportive	Final decision	Context during 2001 and 2002
7. Provider payment method	<ul style="list-style-type: none"> <li>Reformists proposed closed end provider payment as evidence shows fee for service stimulates supplier induced demand in Netherlands<sup>24</sup> and Australia<sup>25</sup> and cost escalation in CSMBS; while SHI capitation model contains cost and provides decent quality service.<sup>18</sup></li> </ul>	<ul style="list-style-type: none"> <li>A number of clinicians spoke in line with PREMA's position which was favour of fee-for-services; which can boost their drug market. Arguments are that NHSO, not the providers, should bear the financial risk. Capitation and DRG transferred the financial risk to healthcare providers.</li> </ul>	<ul style="list-style-type: none"> <li>Closed end payment was adopted, capitation for outpatient services (later age adjusted), and global budget and Diagnostic Related Group for inpatient care are main mode of payment.</li> <li>Later NHSO introduced fee schedule for high cost interventions, payment in kind such as high cost medicines and peritoneal dialysis solutions through NHSO monopsonistic purchasing power<sup>27</sup></li> </ul>	<ul style="list-style-type: none"> <li>Not only local evidence in favour of capitation model, this is the only model which can accommodate the per-capita "hard budget"; while fee for service cannot control the over-spending.</li> </ul>
8. Registration to PHC provider	<ul style="list-style-type: none"> <li>Reformists and CSO advocated contracting with primary care provider network as a gate keeper which supported efficiency. PHC provides better continuity of care for NCD. Free choice to any provider lost the opportunity to strengthen PHC.</li> </ul>	<ul style="list-style-type: none"> <li>Private hospital association, pharmaceutical industries and a World Bank consultant advocated freedom of choice to any qualified providers in country and paid on fee for service with copayment. UCS members should not bound to a provider network with possible low quality of care.</li> </ul>	<ul style="list-style-type: none"> <li>Primary care network is the contractor providers and also served as a gate keeper. In urban area, private clinics are also contracted as PHC providers.</li> </ul>	<ul style="list-style-type: none"> <li>Registration with provider network is a condition for implementing capitation payment. Healthcare Accreditation Institute, supporting continued quality improvement in all public and private health facilities, ensured gradual quality improvement.</li> </ul>
<b>IV. UCS</b>				
<b>Governance</b>				
9. Governing body of UCS	<ul style="list-style-type: none"> <li>Reformists were in favour of "public contract model", applied by SHI, for which SSO regulates public and private providers at arms length through contractual agreements.<sup>17</sup> The public reimbursement model applied by CSMBS had failed to contain cost. The public integrated model applied by Low Income Scheme and the public subsidized voluntary health insurance tends to be non-responsive to patients and have long waiting list.<sup>27</sup></li> </ul>	<ul style="list-style-type: none"> <li>Prior to UCS, MOPH, applying public integrated model, held the annual regular budget (for sub-district, district and provincial health services), plus budgets for Low Income Scheme and the public subsidized voluntary health insurance, had lost all its funding power to NHSO. The MOPH purchaser and provider functions were split; where NHSO held the purchaser function and MOPH only maintained provision function.</li> </ul>	<ul style="list-style-type: none"> <li>NHSO, established by National Health Security Act 2002, is the purchaser organization. Public and private providers had contractual agreements with NHSO.</li> <li>The annual supply side budget subsidies to the MOPH health facilities were curtailed to prevent double funding; and strengthen the accountability between NHSO, providers, and the citizens.</li> </ul>	<ul style="list-style-type: none"> <li>SHI set the precedence of public contract model with decent quality of service and high level of accountability; while the public reimbursement model applied by CSMBS cannot contain cost well; and the public integrated model applied by MOPH for low income scheme and voluntary health insurance were not responsive to patient's demands.</li> </ul>

**TABLE 2.** Stakeholders' Supportive and Non-supportive Position to Key Reform Decision and the Contextual Environment in 2001–2002



**FIGURE 3.** UCS per Capita Budget, Requested and Approved, Baht per Capita, 2002–2019

which third-party payers are kept organizationally separate from service providers. This arrangement is believed to lead to improvements in service delivery, such as improved cost containment, greater efficiency, organizational flexibility, better quality and improved responsiveness of services to patient needs. Prior to the introduction of UCS, the MOPH managed five program budgets through an annual budget allocation to its health facilities including the Provincial Health Services, District Health Services, Sub-district Health Services, Low Income Scheme and voluntary health insurance scheme. As part of the UCS reform, the NHSO was proposed to take over the purchasing function from the MOPH, a function that it already served for the CSMBS and SHI. The goal of this reform was to achieve a purchaser–provider split that could leverage improved efficiency and responsiveness. This meant that the MOPH role as a purchaser (or direct financier) would be terminated and transferred to NHSO from 2002 onwards.

At the inception of the UCS in 2002, the total estimated resource requirement for 47 million UCS members was 56.5 billion Baht. This amount was estimated from 1,202 Baht per capita budget multiplied by 47 million members. The existing MOPH pooled budget for health services from the five items above was 26.5 billion Baht. The shortfall of 30 billion Baht (1 billion USD at 30 Baht exchange rate) was mobilized by the Prime Minister from other sectors. The supply side financing of five programs to the MOPH health facilities become zero in the fiscal year 2002 onward. The combined resources from the previously supply-side financing and the new fresh 30 billion Baht budget were managed by NHSO for UCS members. The MOPH only maintained service provision and other regulatory functions, while its budget holder function for health service provision was

almost totally transferred to NHSO except for major capital outlays. This major reform created long-term tensions between NHSO and MOPH as the MOPH's loss of the control of the budget was perceived as a major loss in the status of the organization. Despite these tensions, significantly more resources were made available to UCS than the previous targeting schemes managed by the MOPH, which enabled a smooth transition as health facilities had a significant gain from increased resources after UCS.

### Policy Decision Processes

While we highlight the role of evidence in informing a number of policy choices that overcame previous path inefficiencies, it is important to note that there is no linear relationship between evidence and policy decisions. Decisions are made based on complex interactions, on case-by-case basis, among actors with different interests and power in a certain contextual environment and at times governed by historical precedence. Evidence is one of the many inputs for policy decisions, such as policy maker's values, interests, judgment, culture of using evidence, lobbying, pressure groups and pragmatism.<sup>28</sup>

It was the political party that adopted the UHC agenda at the 2001 election campaign and deliberately wanted to implement and honor political promises that set the initial agenda for reform and general goals of the UCS. Decisions on policy formulation and design at the operational level rested mostly on the technocrats led by the MOPH Permanent Secretary, in consultation with and approved by the Minister of Public Health.

In the UCS design, the common types of evidence used for informed policy decisions were primary research related

to CSMBS, SHI, social welfare schemes, prescription behavior under fee-for-service and capitation systems, systems efficiency and cost containment. A World Bank consultant's proposal in advocating fee-for-service, on the grounds that consumers should have free choice to any perceived quality service (people should not be tied up with a poor quality contractor provider) was rejected in the face of strong evidence of supplier-induced demand and excessive use of medical products in the CSMBS, which leads to high-cost inflation. Based on the CSMBS experience, the reform team was able to show that a fee-for-service free choice model would result in overcrowded and poor quality tertiary care hospitals while PHC will be starved due to lack of funding. It was determined that deliberate efforts must be given to strengthen the quality of the PHC contractor network. Thai researchers stood firm against the advice of external experts, who held different opinions and were viewed to be driven by certain value-laden presumptions about the inherent value of competition. Three arguments used against the assertions were the following: there is no real competition in the light of healthcare market failure<sup>31</sup>; the better-off traveling to seek quality care while leaving the poor behind widens the inequity gap; and the equalization of quality of care across geographical areas is the government's legitimate responsibility that cannot be solved by market competition. Policy makers were convinced of these evidence and arguments that enabled the adoption of more path-efficient payment and governance reforms.

The permanent secretary at the 2002 UCS launch, Dr. Mongkol Na Songkhla led the process; he was a reformist who has a pro-poor ideology with long experience in district health services as a provincial chief medical officer in various provinces. Several multi-stakeholder task forces and working groups were convened where decisions were made either in consensus through skillful negotiation or majority agreement. He and his team worked closely with the Minister and Deputy Minister of Public Health. In addition, qualified health systems and policy researchers in the MOPH further brought to bear credible evidence and worked with the Permanent Secretary and team. These individuals had rural health service backgrounds, operational experiences and had developed research findings in relation to the Low Income Scheme and the CSMBS, and were also involved with the capitation design for SHI since the 1991 inception phase,<sup>19</sup> thereby reducing the barriers between policy makers and researchers.<sup>26</sup> This evidence was synthesized in concept papers and was presented to multi-stakeholder working groups with policy options and the financial, political and operational consequences of each option. With the leadership of the Minister, Deputy Minister and the

Permanent Secretary, and the political mandate to achieve UHC, decisions had to be made even when there was no consensus, so that immediate operational actions could be taken. The resulting health system reflects the influence of these different processes and conflicts.

## DISCUSSION

This analysis generates two major observations about the political economy of health reform. Early choices can be consequential for future options; however, early choices are probabilistic and not deterministic of future outcomes. Given the fact that the past can influence the future, countries should aim to set the right path at the beginning of introducing a new health scheme, as reorienting wrong directions is difficult, tiring or bound to failure. Reform teams can overcome political friction through deliberate strategizing that draws on evidence to inform policy decisions though there are limits to this process.<sup>21</sup>

The International Health Policy Program (IHPP), a home-grown health policy and systems research think tank established in 1998, generated evidence that rejected the CSMBS fee-for-service payment method. IHPP has a mandate to generate evidence and capacity building for professional health systems and policy researchers. Its arm-length relationship with MOPH is beneficial, not too distant to be irrelevant and not to be too close to be dominated.<sup>32</sup> It also supported the estimate of the first capitation budget for 2002 and a few subsequent years while gradually transferred skills to NHSO.<sup>19</sup> The Health Intervention and Technology Assessment Program, a sister agency of IHPP established in 2007, and partners generated evidence on the cost-effectiveness of new medicines to be included into the National List of Essential Medicines, which is the drug benefit package for UCS, and new interventions into UCS benefit package.<sup>33</sup> The founder of UCS, Dr Sanguan Nittayaramphong, was not only a key reformist but also played the bridging role between evidence and policy decisions.<sup>34</sup> He and civil society organization partners advocated UHC to all political parties prior to the January 2001 general election; only Thai Rak Thai Party was convinced and won the election. The conservative Democrat Party was not convinced and "insisted on a targeted approach."<sup>4</sup>

Though the political tensions between NHSO and MOPH on purchaser-provider split were serious, the senior managements of MOPH health facilities were ultimately satisfied with the UCS because in the end, it increased the overall resources available for the health service provision. The budget of 1,202 Baht, a full cost subsidy to UCS members

in 2002, is almost six-fold of the 273 Baht per capita subsidies for the Low Income Scheme, arbitrarily approved by Bureau of Budget, and more than double the 500 Baht subsidies per household of four members enrolled in the voluntary public health insurance scheme. UCS reform was therefore acceptable to healthcare providers as the budget subsidies were adequate and based on the cost of provision. Their salaries were not affected by the reform.

While the strategic use of evidence by third parties to manage the reform process is one deliberate approach that the reform team was able to control and leverage, other contextual factors that the reform team had less control over were key enabling factors supporting UCS reforms, which provide additional lessons for other LMICs. The health systems context in 2000 of full geographic coverage of district health systems furnished a strong foundation for implementing UCS with a pro-poor outcome in terms of utilization and benefit incidence,<sup>7</sup> due to the geographical proximity of “close to client services” provided by early expansion of primary care under district health systems. The dominant role of the non-profit public sector was a key contextual determinant supporting smooth UCS transition, whereas countries with private for-profit facilities playing a dominant role face heightened resistance against reform efforts.

The small-scale DRG piloted since 1996 for paying certain high-cost services of the Low Income Scheme set a strong foothold for adopting DRG provider payment for inpatient services since the beginning of UCS implementation in 2002. Building on this initial foundation, reformists proposed a policy to prevent the negative consequences of cost increases from DRG creep by introducing a global budget for inpatient care. (DRG creep is an unjustified false claim by reporting higher severity of clinical conditions, additional complication, and co-morbidity for gaming higher relative weight and payment.)

The fiscal context also mattered as part of the justification for the adoption of cost-containing payment mechanisms. Closed-end provider payment is the only choice that can keep the expenditure within the finite per-capita budget. The reform’s cost containment strategy accommodated the limited fiscal space for health at a time when the economy had not fully recovered from the 1997 Asian Economic Crisis.<sup>35</sup>

At the same time, while Thailand’s UCS represents large achievements in building a high-quality UHC system in a resource-constrained environment, an unfinished agenda still remains. The political context in 2002 did not allow for the achievement of a single scheme which combines CSMBS, SHI, and UCS into one umbrella due to

resistance by the Comptroller General Department and Social Security Office; despite Articles 9 (integrating CSMBS with UCS) and 10 (integrating SHI with UCS) of the 2002 National Health Security Act, implementing these Articles are subject to Royal Decree when the systems are ready to integrate. Given the resistance to institutional integration, a functional integration which harmonizes across three schemes (in particular the benefit package, provider payment and per capita spending) was implemented though with uneven outcomes, despite the need for coordination as members move across three schemes. For example, the unemployed SHI and CSMBS child dependents beyond 20 years old will be covered by UCS as a citizen entitlement to health. Though members moving across schemes have reduced the resistance to harmonizing benefit packages and provider payment methods, it does not overcome continued resistance to a merger into a single scheme. Currently, the three schemes have agreed and implemented Universal Coverage for Emergency Patients. It enables all patients, regardless of their insurance scheme, who require critical emergency medical care to be able to access whichever hospital is closest to them, either public or private, for a period of up to 72 hours with no copayment. The NHSO will, in turn, reimburse to that hospital. This example suggests that further path efficient, incremental reforms are possible.

## CONCLUSION

Although the UCS reform of 2002 was the product of multiple processes<sup>36</sup>—a transition from a low income and voluntary public health insurance scheme to the UCS by incorporating the 30% uninsured—this study demonstrates that UCS is the result of incremental changes. Key UCS designs (including legislation, governance, population coverage expansion, general taxation as the main sources of financing, budgetary reform, the generous benefit package including health promotion, efficient provider payment methods, promoting the use of PHC and getting beneficiary input via a call center) are all the products of the accumulated knowledge and skills of the critical mass of reformists on various issues (e.g., health insurance, health financing, PHC, and DRG). However, these reforms could not have been achieved without lengthy negotiations and political leadership in the light of disagreements across different actors. The reformists were able to achieve many of their preferred, evidence-based design elements including those that critically contribute to the success of UCS implementation. A few major breakthroughs are evidence-based and participatory budgeting

processes, the termination of supply-side financing, strategic purchasing in particular closed-ended provider payment, and purchaser–provider splits. Understanding the political economy dimensions of reform, the power and position of different actors, the culture of using evidence for decisions and leadership are enabling factors for successful reforms.

This study highlights two actors who overcame the myriad obstacles of UHC reforms: the reformist bureaucrats and their institutional networks who contributed to the evidence-based knowledge; and the MOPH progressive bureaucrats who laid down, over several decades, a firm PHC foundation.<sup>37</sup> Further, the implementation capacity of the MOPH delivery systems translated the UHC political aspiration into reality.

## DISCLOSURE OF POTENTIAL CONFLICT OF INTEREST

No potential conflicts of interest were disclosed.

## ACKNOWLEDGMENTS

We acknowledge that this study is financially supported by WHO. We wish to acknowledge the competency of NHSO staff on their implementation of UCS. We pay tribute to the late Dr Sanguan Nittayarampong who is the founder of UCS and the first Secretary General of NHSO. We acknowledge and appreciate Dr Ashley Fox's contributions in commenting and strengthening the political economy dimensions of this manuscript.

## ORCID

Viroj Tangcharoensathien  <http://orcid.org/0000-0003-3235-0091>

Walaiporn Patcharanarumol  <http://orcid.org/0000-0003-1798-8767>

Anond Kulthanmanusorn  <http://orcid.org/0000-0002-9855-1681>

Nithiwat Saengruang  <http://orcid.org/0000-0001-7572-6920>

Hathairat Kosiyaporn  <http://orcid.org/0000-0002-7203-8089>

## REFERENCES

1. Kim JY. Speech by World Bank Group President Jim Yong Kim on Universal Health Coverage in emerging economies. [accessed 2019 Mar 10]. <https://tinyurl.com/pw28bqm>.

2. Thammatacharee N, Tisayaticom K, Suphanchaimat R, Limwattananon S, Putthasri W, Netsaengtup R, Tangcharoensathien V. Prevalence and profiles of unmet healthcare need in Thailand. *BMC Public Health*. 2012;12:923. doi:10.1186/1471-2458-12-923.
3. Wanwong Y, Viriyathorn S, Lapthikultham S, Panichkriangkrai W, Tisayaticom K, Patcharanarumol W. Unmet health need: outpatient, inpatient, and dental services in Thai population by 2015 [in Thai]. *HSRI J Health Syst Res*. 2017;11(2):182–94. accessed 10 March 2019. <https://goo.gl/wuhSGL>.
4. Tangcharoensathien V, Pitayarangsarit S, Patcharanarumol W, Prakongsai P, Sumalee H, Tosanguan J, Mills A. Promoting universal financial protection: how the Thai universal coverage scheme was designed to ensure equity. *Health Res Policy Syst*. 2013;11:25. doi:10.1186/1478-4505-11-25.
5. World Development Indicators, Out-of-pocket expenditure (% of current health expenditure). World Bank; [accessed 2019 Mar 10]. <https://tinyurl.com/yy2no6fa>.
6. Tracking universal health coverage: 2017 global monitoring report. Geneva, Switzerland: World Health Organization and International Bank for Reconstruction Bank and Development; 2017. [accessed 2019 Mar 10]. <https://bit.ly/2rvMYyE>.
7. Limwattananon S, Tangcharoensathien V, Tisayathicom K, Boonyapaisarncharoen T, Prakongsai P. Why has the universal coverage scheme in Thailand achieved a pro-poor public subsidy for health care? *BMC Public Health*. 2012;12(suppl1):S6. doi:10.1186/1471-2458-12-S1-S6.
8. Patcharanarumol W, Tangcharoensathien V, Limwattananon S, Panichkriangkrai W, Pachanee K, Pongkantha W, Gilson L, Mills A. Why and how did Thailand achieve good health at low cost? (Chapter 7). In: Balabanova D, McKee M, Mills A, editors. 'Good health at low cost' 25 years on. What makes a successful health system? London, United Kingdom: London School of Hygiene & Tropical Medicine; 2011. p. 193–223.
9. Tangcharoensathien V, Witthayapipopsakul W, Viriyathorn S, Patcharanarumol W. Improving access to assistive technologies: challenges and solutions in low- and middle-income countries. *WHO South East Asia J Public Health*. 2018;7:84–89. doi:10.4103/2224-3151.239419.
10. Pierson P. Politics in time: history, institutions and social analysis. Chicago, United States of America: Princeton University Press; 2004.
11. Haeder SF. Beyond path dependence: explaining healthcare reform and its consequences. *Policy Stud J*. 2012;40:65–86. doi:10.1111/j.1541-0072.2012.00446.x.
12. Tangcharoensathien V, Limwattananon S, Suphanchaimat R, Patcharanarumol W, Sawaengdee K, Putthasri W. Health workforce contributions to health system development: a platform for universal health coverage. *Bull World Health Organ*. 2013;91:874–80. doi:10.2471/BLT.13.120774.
13. Putthasri W, Suphanchaimat R, Topothai T, Wisaijohn T, Thammatacharee N, Tangcharoensathien V. Thailand special recruitment track of medical students: a series of annual cross-sectional surveys on the new graduates between 2010 and 2012. *Hum Resour Health*. 2013;11:47. doi:10.1186/1478-4491-11-47.
14. World Bank 2019. World Development Indicators. [accessed 2019 Mar 22]. <https://data.worldbank.org/>.
15. Tangcharoensathien V, Prakongsai P, Limwattananon S, Patcharanarumol W, Jongudomsuk P. From targeting to universality:

- lessons from the health system in Thailand (Chapter 16). In: Townsend P, editor. *Building decent societies: rethinking the role of social security in development*. Houndmills (Basingstoke, Hampshire): Palgrave Macmillan; 2009. p. 310–22.
16. Hurst JW. *The Reform of health care: a comparative analysis of seven OECD countries*. Paris (France): Organisation for Economic Co-operation and Development; 1992.
  17. Hurst JW. Reforming health care in seven European nations. *Health Aff*. 1991;10(3):7–21. doi:10.1377/hlthaff.10.3.7.
  18. Mills A, Bennett S, Siriwanarangsun P, Tangcharoensathien V. The Response of providers to capitation payment: a case-study from Thailand. *Health Policy*. 2000;51:163–80.
  19. Tangcharoensathien V, Suphanchaimat R, Thammatacharee N, Patcharanarumol W. Thailand's universal health coverage scheme. *Econ Polit Wkly*. 2012;47:53–57.
  20. Tangcharoensathien V, Patcharanarumol W, Panichkriangkrai W, Sommanustweechai A. Policy choices for progressive realization of Universal Health Coverage; comment on "Ethical perspective: five unacceptable trade-offs on the path to Universal Health Coverage". *Int J Health Policy Manag*. 2017;6:107–10. doi:10.15171/ijhpm.2016.99.
  21. Towse A. 2004. Learning from Thailand's health reforms. *BMJ*, 328(7431):103–105. doi:10.1136/bmj.328.7431.103.
  22. Jongudomsuk P, Limwattananon S, Prakongsai P, Srithamrongsawat S, Pachanee K, Mohara A, Patcharanarumol W, and Tangcharoensathien V. Evidence-based health financing reform in Thailand (Chapter 16). In: Clements B, Coady D, and Gupta S, eds. *The Economics of public health care reform in advanced and emerging economies*, 307–26. Washington, DC: International Monetary Fund, 2012.
  23. Suphanchaimat R, Putthasri W, Prakongsai P, Tangcharoensathien V. Evolution and complexity of government policies to protect the health of undocumented/illegal migrants in Thailand – the unsolved challenges. *Risk Manag Healthc Policy*. 2017;10:49–62. doi:10.2147/RMHP.S130442.
  24. Van Dijk CE, van Den Berg B, Verheij RA, Spreeuwenberg P, Groenewegen PP, de Bakker DH. Moral hazard and supplier-induced demand: empirical evidence in general practice. *Health Econ*. 2012;22(3):340–52. doi:10.1002/hec.2801.
  25. Longden T, Hall J, van Gool K. Supplier-induced demand for urgent after-hours primary care services. *Health Econ*. 2018;27:1594–608. doi:10.1002/hec.3779.
  26. Orton L, Lloyd-Williams F, Taylor-Robinson D, O'Flaherty M, Capewell S. The use of research evidence in public health decision making processes: systematic review. *PLoS One*. 2011;6(7):e21704. doi:10.1371/journal.pone.0021704.
  27. Tangcharoensathien V, Witthayapipopsakul W, Panichkriangkrai W, Patcharanarumol W, Mills A. Health systems development in Thailand: a solid platform for successful implementation of universal health coverage. *Lancet*. 2018;391:1205–23. doi:10.1016/S0140-6736(18)30198-3.
  28. Sutcliffe S, Court J. *Evidence-based policymaking: what is it? How does it work? What relevance for developing countries?* London, United Kingdom: Overseas Development Institute; 2005.
  29. Klitgaard R. *Controlling corruption*. California, United States of America: University of California Press; 1988.
  30. Klitgaard R (2011). *Fighting corruption*. CESifo DICE Report 2/2011. [accessed 2019 June 6]. <https://bit.ly/2WsiUkl>.
  31. Iszaid I, Hafizan AH, Juni MH. Market failure in health care: a review. *Int J Public Health Clin Sci*. 2018;5(5):16–25. doi:10.32827/ijphcs.5.5.16.
  32. Pitayarangsarit S, Tangcharoensathien V. Sustaining capacity in health policy and systems research in Thailand. *Bull World Health Organ*. 2009;87:72–74. doi:10.2471/blt.07.044479.
  33. Tangcharoensathien V, Limwattananon S, Patcharanarumol W, Thammatacharee J, Jongudomsuk P, Sirilak S. Achieving universal health coverage goals in Thailand: the vital role of strategic purchasing. *Health Policy Plan*. 2015;30:1152–61. doi:10.1093/heapol/czu120.
  34. Tangcharoensathien V, Wibulpolprasert S, Nitayarampong S. Knowledge-based changes to health systems: the Thai experience in policy development. *Bull World Health Organ*. 2004;82:750–56.
  35. Tangcharoensathien V, Harnvoravongchai P, Pitayarangsarit S, Kasemsup V. Health impacts of rapid economic changes in Thailand. *Soc Sci Med*. 2000;51:789–807.
  36. Green A. Reforming the health sector in Thailand: the role of policy actors on the policy stage. *Int J Health Plann Manage*. 2000;15(1):39–59. doi:10.1002/(sici)1099-1751(200001/03)15:1<39::aid-hpm567>3.0.co;2-9.
  37. Harris J. 'Developmental capture' of the state: explaining Thailand's universal coverage policy. *J Health Polit Policy Law*. 2015;40(1):165–93. doi:10.1215/03616878-2854689.