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RESPONSES TO THE COVID-19
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REGRESSION

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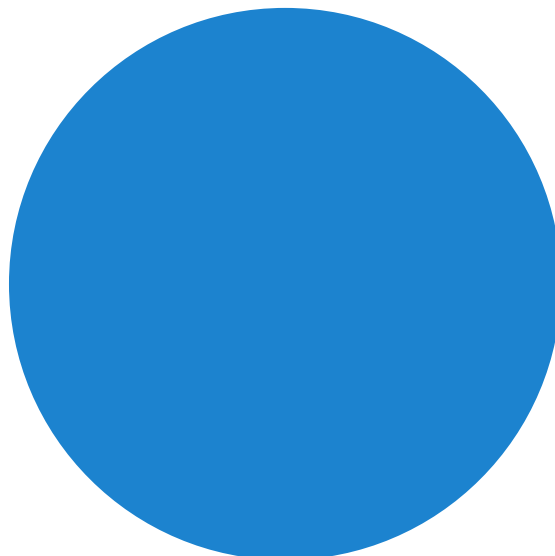
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**THE PROGRESS OF
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*Pontakorn Vorapamorn
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SHORT-TERM ECONOMIC IMPACT OF POLICY RESPONSES TO THE COVID-19 PANDEMIC: CROSS-COUNTRY REGRESSION*

Thammarat Bunjaroenphornsuk

*Nonarit Bisonyabut***

1. INTRODUCTION

The novel coronavirus (severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2), which has caused the COVID-19 pandemic, precipitated a major global crisis not seen in over a century. In less than two months, the coronavirus had spread to more than 100 countries, resulting in about 1 million infections and a considerable number of deaths globally. Despite having a lower fatality rate than SARS, MERS, and Ebola, SARS-CoV-2 infects humans faster than other hazardous virus. The number of cases and deaths had reached

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roughly 140 million and 3 million, respectively, by the middle of April 2021.¹

As a result of the disconcerting rates of human suffering, several governments implemented unprecedented non-pharmaceutical interventions to suppress the spread and limit the loss, including broad and targeted lockdowns, border restrictions, and such smart strategies as diagnostic testing, contact tracing, and isolation, as well as social distancing and the wearing of face masks. Their effectiveness in compromising the severity of the pandemic has been empirically recognized in the epidemiological literature (Anderson et al., 2020; Cowling et al., 2020).

Aside from the health and life concerns, the pandemic has had a devastating negative impact on the global economy in a variety of ways. First, COVID-19 infections cause a substantial decline in the workforces because many employees and workers must be isolated or hospitalized, implying a supply constraint. Second, stringent measures to prevent contagion from overwhelming the capacity of a country's healthcare system, such as social distancing, lockdowns, and quarantines, ultimately impede a large amount of economic activity. The sudden disruption triggers a vicious cascading chain: workplace and factory closures, layoffs, income declines, spending cuts, and suspended investment (Eichenbaum et al., 2020; Gourinchas, 2020). Third, the shock amplifies pressure on borrowing costs

¹ Globally, as of 4:22pm CET, 14 March 2022, there have been 469,212,705 confirmed cases of COVID-19, including 6,077,252 deaths, reported to WHO.

and the risk faced by financial markets as a result of the flight to safe assets and widespread defaults (IMF, 2020). Without accompanying appropriate macroeconomic policy supports, argued by many leading economists, the amplification dynamics might convert the temporary shock into an accumulation of a considerable amount of long-term economic scars (see Baldwin and Weder di Mauro, 2020).

Intending to limit the economic damage from the pandemic, authorities in governments and central banks around the world have enacted sizable fiscal and monetary measures. In the short run, fiscal policy is aimed at cushioning vulnerable households and businesses adversely affected by swift supply disruptions and demand downturn. Typical fiscal remedies to assist those agents in staying afloat include cash transfers, salary subsidies, extension of social security benefits, and tax relief. Monetary policy needs to ensure a sufficient flow of credit in the economy and improve financial market conditions through the provision of liquidity, credit guarantees, and asset purchases when conventional monetary transmission become impaired (Gopinath, 2020; Harjes et al., 2020)

When vaccines started to become available in January 2021, governments shifted their priority to mass vaccination initiatives as containment measures and healthcare interventions are inadequate in resolving the pandemic, and continued fiscal and monetary stimulus packages are not economically sustainable. The goal of vaccination against COVID-19 is to raise people's immunity to the point

where, if they contract the disease, it would be mostly only mildly harmful and far less transmissible. The thinking is that costly and stringent containment measures and massive economic COVID-related packages will eventually become unnecessary.

Because the stringency of public health policies, the size of economic packages, and the severity of the consequent recessions vary by country, the aim of this paper is to provide empirical cross-country evidence of the short-term economic impact of the COVID-19 policy responses, which include health-care, containment, vaccination, and economic stimulus measures. First, the paper presents variations in the economic damage caused by the pandemic across 145 economies around the world. Then, using a cross-country regression, it provides a statistical analysis to determine to what extent the policy responses affect the national recessions.

The organization of the rest of the paper is as follows. The following section contains a description of the methodology for estimating numerical outcomes of the economic recessions induced by the COVID-19 pandemic, policy data and data sources. The third section presents analyses regarding disparities in economic loss and the regression results. Finally, the conclusions follow.

2. DATA

2.1 Severity of the COVID-19 Pandemic on Economies

The paper examines the short-term impact of the COVID-19 pandemic by utilizing economic growth forecasts, by country, from the IMF World Economic Outlook (WEO) for April 2020 and April 2021.² Then, it divides the IMF projections into three categories:

- 1. Previous economic expected loss:** the percentage difference between (a) the post-COVID average growth forecast in 2020 and 2021 based on WEO (2020), and (b) the pre-COVID average growth forecast in 2020 and 2021 based on WEO (2020);
- 2. Revised economic expected loss:** percentage difference between (a) average of actual growth in 2020 with projected growth in 2021 based on WEO (2021), and (b) pre-COVID average growth forecast in 2020 and 2021 based on WEO (2020); and
- 3. Forward economic expected loss:** percentage difference between (a) average growth forecast in 2021 and 2022, and (b) pre-COVID average growth forecast in 2020 and 2021 based on WEO (2020).

All categories, therefore, show short-run deviations of economic loss from the growth trend in the absence of the pandemic.

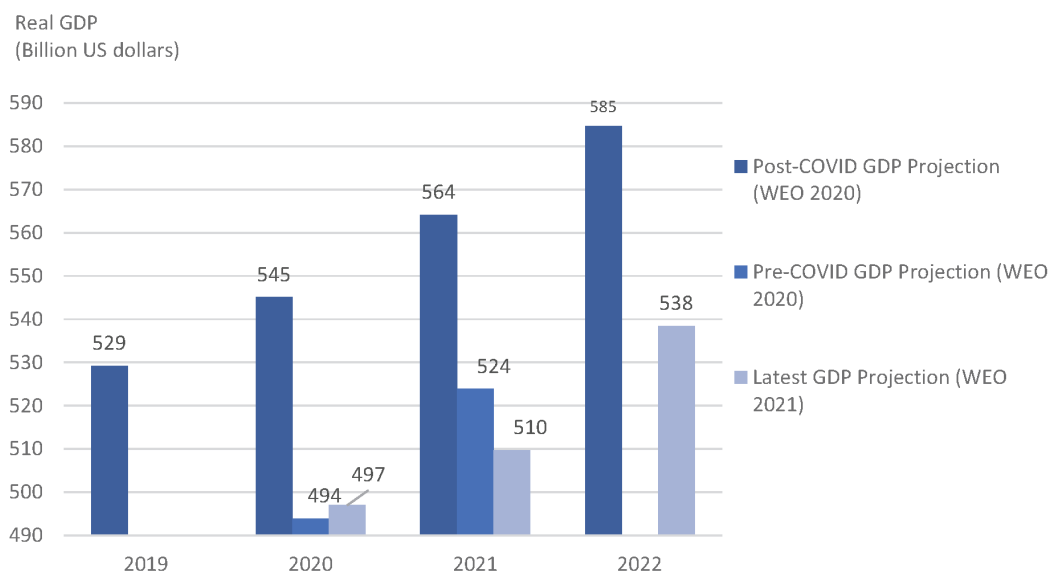
² Since this article partly belongs to the study already finished in July 2021, the data used this paper therefore up to most recent date at the time.

The following is an example of estimating the economic impact. Figure 1 depicts Thailand's real GDP predictions based on the 2019 actual estimate of \$529 billion. In WEO (2020), IMF estimated that Thailand's pre-COVID real GDP for 2020, 2021, and 2022 would be \$545 billion, \$564 billion, and \$585 billion, respectively, with annual growth rates of 3, 3.49, and 3.65 percent, respectively. With the pandemic shock factored in, IMF revised its predictions for 2020 and 2021 to \$494 billion and \$524 billion, respectively, corresponding to annual growth rates of -6.66 percent and 6.07 percent. As a result, the previous version of Thailand's expected economic loss is 8.24 percent of actual GDP in 2019.

One year later, in WEO (2021), IMF announced that Thailand's actual 2020 real GDP was \$497 billion and provided a new projection for 2021 of \$510 billion of GDP; thus, the annual growth rates for 2020 and 2021 are -6.09 and 2.56 percent, respectively. As a result, Thailand's revised economic expected loss for 2019 is 9.24 percent of 2019 GDP, indicating that the economy has incurred more damage than the IMF had predicted in 2020.

WEO (2021) also included Thailand's real GDP projection for 2022 at \$538 billion. Calculated with the projections in the same period from WEO (2020), the forward economic expected loss is 8.76 percent of 2019 GDP, which means that Thailand would experience an 8.76 percent drop in GDP growth over the next two years, 2021 and 2022, relative to the pre-COVID trend. This methodology is used to estimate three categories of economic loss for all economies assessed.

Figure 1: Thailand's economic projections



Source: International Monetary Fund and authors' calculations.

2.2 Policy Data and Other Data

In this paper, the countermeasures against COVID-19 are divided into five categories: (a) fiscal policy measures, (b) monetary policy measures, (c) containment measures, (d) healthcare measures, and (e) vaccination. Also, the paper compiles data on COVID-19 infection and death, key economic indicators, and a proxy for the healthcare system.

The first two measure groups are macroeconomic policies acquired from the IMF database on the COVID-19 Policy Tracker and different online sources for cross-checking, such as the Elgin et al. (2020) data set. Fiscal policies include tax relief, financial assistance for households and businesses, and COVID-related public health expenditures. Monetary policies consist of central bank liquidity injection, funds to support businesses,

and debt guarantees by the government. These measures are coded as a percentage of 2019 GDP.

The subsequent two COVID-related public health measures are drawn from the Oxford COVID-19 Government Response Tracker (OxCGRT), which provides indices reflecting the extent of each government's approach to COVID-19, such as containment and health index, stringency index, and economic support index. Because the purpose of the paper is to split governmental response effects into health measures and containment measures, the two indices are recalculated using the report's methodology based on the relevant indicators. The health index tracks public information campaigns, testing policy, contact tracing, facial coverings, and protection

of the elderly; the containment measures record school closures, workplace closures, public event cancellation, and restrictions on international travel, before being normalized to range between 0 and 100 and then aggregated, with each index being the average of its own sub-indices.

For the last measure, the paper obtained data on the number of fully vaccinated people from Our World in Data, coded as a percentage of a country's population. The rest of the data gathered in this paper is information required to support the empirical analysis. Infection rate, as a percentage of the population, and death rate, as a percentage of infected people, and number of hospital beds, which acts as a proxy for the healthcare system, were obtained from Our World in Data. Key economic indicators, including foreign direct investment (FDI), exports, and tourism income, defined as a percentage of GDP, and the UNDP human development index (HDI), which comprises data on life expectancy, educational attainment, and gross national income per capita, are from a World Bank database. Note that the paper collects all policy response data prior to April 15, 2021, which is the same date on which IMF compiled information available for its projections in the most recent WEO edition, while the others are from 2019.

3. EMPIRICAL ANALYSIS

3.1 A Comparison of the Economic Loss, by Country

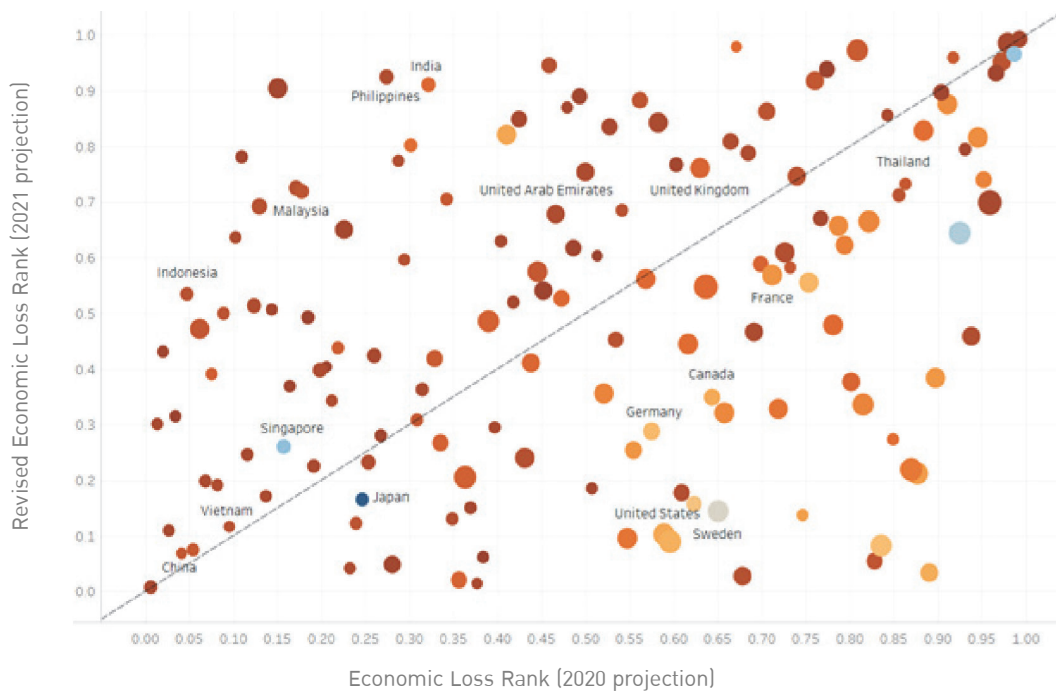
The outbreak of SARS-CoV-2 began at the end of December 2019; it was named the COVID-19

pademic on March 11, 2020 and has rapidly spread worldwide since early that year. Several economies have come to a halt, whether as a result of hospitalization or containment measures. However, each economy may suffer unequally because, on one hand, the severity of infections varies greatly, and on the other, policymakers of each country adopt diverse macroeconomic policy supports based on their capacity.

Utilizing IMF real GDP projections, this paper re-estimates the short-run economic damage caused by the pandemic, as mentioned in section 2. To demonstrate the ability to mitigate the slump under each country's different circumstances, the paper compares a change in the ranking of the previous expected economic loss and the revised expected economic loss over 2020 and 2021. The variation is necessary to infer the effectiveness of the short-run macroeconomic policies.

Figure 2 displays a scatterplot of each country's change in expected economic loss. Over the same period, 2020 to 2021, the horizontal axis represents the percentile rank of expected loss based on the 2020 projection, ranging from 0.1 to 1, where 0.1 is the country's least economic loss, while 1 represents the most damaged economy; the vertical axis represents the rank based on the 2021 projection. The size of dots defines an infection rate expressed as a percentage of infected people per population. Finally, the color denotes the size of fiscal and monetary policy stimulus to GDP: orange to blue denotes the size of a large to larger injection, while red denotes a relatively small injection.

Figure 2: Expected change in economic loss across economies



Source: Authors' calculation.

Analysis from the figure include:

1. Most countries with low infection rates tend to have a relatively minor expected economic loss. In particular, China and Vietnam's economies suffered more trivial losses in the 2020 and 2021 projections.
2. Countries with high infection rates and high economic damage ratings in the previous projection can be divided into two main groups. The countries with more substantial economic stimulus, such as Germany, Sweden, the United States, and France, are prone to be ranked lower in the revised version, as

- evidenced by dot locations below the 45-degree line. In contrast, the light-stimulus group, such as the United Arab Emirates, scores higher in the revised economic loss projection. The implementation of economic stimulus against the severity of the recession appears to be having a beneficial impact.
3. There are a few exceptions where the relationship between infection rate and extent of economic loss contradicts the first investigation. Thailand, for example, has a low infection rate but a high economic damage rating. Despite a comparatively large economic stimulus,

Thailand's re-estimated rank in the revised projection barely improved; it is still ranked higher than 70 percent of the others. Hypothetical explanations for this sizeable economic damage include structural conditions and the intensity of the containment strategy. For starters, the economy is more likely to be vulnerable to the pandemic if it heavily relies on income from international tourists (Gössling et al., 2020), such as Thailand, where the tourism sector accounts for roughly 15 percent of GDP. The second, containment policy, hypothesized to have a detrimental impact, is overly restrictive.

3.2 Cross-country Regression Analysis

Ideas shown in the previous section suggest the occurrence of disparate economic suffering across countries along with some potential explanatory factors, including response policies and structural economic conditions, that cause the difference. This section provides an empirical assessment of the extent to which COVID-19 policy responses, including containment measures, economic policy stimulus, healthcare measures, and vaccination, causally ameliorate or exacerbate the economic fallout determined by regression analysis.

The main challenge of this empirical analysis is how to cope with an endogeneity problem to reduce biased estimates of the effect of the measures, stemming from the dynamic context of the policy

responses to the progression of COVID disease. The government of each country made a decision to implement the responses, which depends on information on the severity of the virus's spread and the depression of its economy. In turn, policy implementation potentially affects mobility and economic outcomes (Maloney and Taskin, 2020).

To address the endogeneity problem, this paper uses the forward expected loss over 2021 and 2022 computed from the IMF GDP forecast based on data prior to April 15, 2021, while the data of policy responses and COVID variables is gathered up to the same date and May 31, 2021, respectively. This approach is therefore able to control the simultaneous bias in the estimation of the casual effect of the policies, as the GDP projection is less likely to be used as information on which a government would take action.

The assessment used to derive the causal effect of the policies to economic loss defined as a deviation from the baseline projection without COVID-19 is based on the cross-country regression of 145 economies, which uses the forward economic expected loss over 2021 and 2020 as a dependent variable. This variable allows for an evaluation of the prospective impact of policy measures implemented from 2020 to 2021. The structure of the regression equation is

$$\text{Economic loss} = \alpha(\text{Policies}) + \beta X + \mu$$

Where α is a vector of coefficients on the policy variables, X with the economic loss, including the severity of the COVID-19 spread, health system



resources, and economic constraints. The infection rate and mortality rate represent the severity of the spread. Hospital beds are a proxy for the healthcare capacity for which there is empirical evidence of the impact on economic collapse, as Enrique et al. (2020) proposed. The latter includes HDI and economic conditions which capture exposure to the global recession, comprising international tourism income, exports, and FDI to GDP. β is the estimated coefficient on the control variables, and μ is an error term.

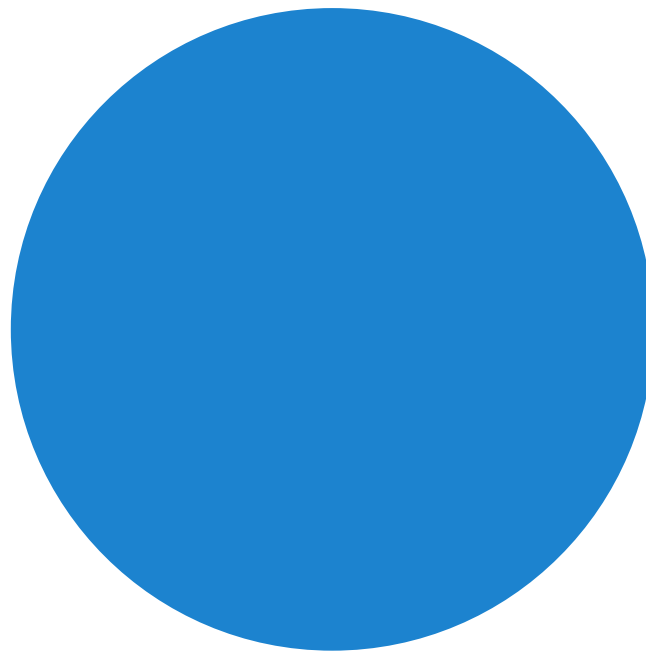
Those control variables are meant to limit the presence of omitted variable bias that can occur in the estimates when determinants of the dependent variable, which also correlate with the regressor, are not included in the model. The bias would provide incorrect parameters explaining the relationship between the policies and economic deviation from the baseline. Restriction measure, for example, might be determined jointly with COVID-19 cases and deaths that are also likely to affect the economy. Note that this approach trades off some precision in the estimates due to multicollinearity for more correctness.

The paper uses robust regression for the estimation of the model. This estimator, first introduced by Huber (1973), is less sensitive to the presence of outlier observations and provides more precise coefficient estimates than the ordinary least squares (OLS) estimator. The data set employed in this paper displays some outliers in both the dependent and the independent variables identified by the influence statistics for the model specification

estimated by the OLS method. Given the statistical identification of outliers in the dependent variables and the regressors, the paper employs the MM-estimation method for robust least squares, a combination of M-estimation and S-estimation that can address outliers in all variables.

Lastly, the paper segregates two econometric specifications for robustness exercises of the regression outputs. As explained previously, the first model, main specification, has the forward economic expected loss as a dependent variable, and all regressors are intact. The previous economic expected loss over 2020 and 2021 is instead used as a dependent variable in the second specification, and policy variables are based on data prior to April 7, 2020, except for COVID-related variables, which are data available on May 31, 2020. The regressors in the second model exclude the vaccination rate due to the unavailability of vaccine establishment in the period. This test delivers a simple investigation of whether policy responses consistently have a valid impact on economic loss even at different periods.

Table 1 summarizes the regression findings of the COVID-19 policy effect on the estimated economic deviation from the baseline projection. Economic stimulus measures are positively associated with the economic deviation, indicating that these policies mitigate economic loss from the COVID-19 pandemic. The cushion effect of the fiscal stimulus measure on a depressed economy is statistically significant and consistent across different models. However, the two-standard-error confidence interval is broad: the estimate implies



that a 10-percentage-point increase in fiscal spending to GDP, holding COVID-19 variables, health system capacity, and other economic conditions constant, improves a country's gross income by between 0.18 and 1.98 percent. In contrast, even though the relationship is positive, the estimate of monetary injection effect on economic mitigation has about a more-than-five-times smaller magnitude than the fiscal stimulus on average and is not statistically significant.

Non-economic measures, on the other hand, appear to have diverse associations. For predicting variation in economic loss among sample countries, containment policy (the daily average of eight lockdown indices, e.g., international travel restrictions, workplace closures, and school closures) matters more than the other non-economic responses. Its relationship with economic fallout is statistically and consistently significant; increasing the containment measures by 20 index points

(equivalent to a fifth of the strictest lockdown measures), holding other factors fixed, deepens the economic output by between -1.52 and -0.28 percent. On the contrary, health policy response (consisting of testing policy, facial coverings, etc.) and vaccination rate (percentage of people who have been fully vaccinated against COVID-19) generate estimated insignificant effects of minimal positive magnitude (except for the estimated effect of the healthcare index, which is insignificantly negative in the second model).

The regression findings emphasize the direct damaging effect of containment measures on the economy and provide statistical evidence of the connection between fiscal stimulus measures and economic loss mitigation. Although the other COVID-related policy responses do not reject their null economic effect, they might nonetheless have an impactful role in economic realms which the model specifications of linear relationship used by this paper cannot apprehend.

While fiscal support measures handle important parts for addressing COVID-related economic problems, there is a consensus among policymakers that the role of monetary policy, which is aimed at maintaining the stability of prices, the real economy, and the financial system, is a crucial complement in countering a dramatic recession (English et al., 2021). Most monetary tools are determined to prevent economic and financial collapse and arrange recovery conditions during the pandemic. Temporary liquidity provisions to support bank lending, one of the unconventional monetary

tools, for instance, is deployed to ensure that the banking system is functional in order to address the financial needs of impaired sectors (Harjes et al., 2020). The weaker estimate of monetary policy effect thus seems to partly support the assertion of the complementary stance.

There is also evidence that vaccination rollouts and public healthcare interventions, such as testing and tracing, are associated with economic loss mitigation in a more complicated or indirect way. According to Deb et al. (2022), the estimated economic impact of the actual vaccination rates alone may be underestimated. The significant influence of vaccinations on economic output is sourced from unanticipated increases in vaccination rates, positive spillover effects from trading partners' vaccines, and the non-linear effects that economic benefits of an increased vaccination rate are more remarkable than the initial administration phase.

Similarly, Islamaj et al. (2021) asserted that the economic importance of a testing-and-tracing policy is an indirect contribution by lowering the economic cost from any selected shutdown tier. Furthermore, both non-economic measures (vaccinations and healthcare interventions) have been well proven in the epidemiological literature to effectively lower mortality rates, which are more or less associated with economic loss (Dagan et al., 2021; Terriau et al., 2021). As a result, the indirect economic effects of vaccination and healthcare interventions are not represented in the model specifications and are understated.

Table 1: COVID-19 Policy Responses and the Economic Expected Loss

MM robust regression	Economic deviation over 2021 and 2022 (% of baseline GDP)			Economic deviation over 2020 and 2021 (% of baseline GDP)		
	Coefficient	95% CI		Coefficient	95% CI	
		Low	High		Low	High
Independent var.						
Containment index	-0.0465 (0.0002)	-0.0759	-0.0143	-0.0663 (0.0018)	-0.1083	-0.0242
Fiscal policy stimulus to GDP	0.1078 (0.0175)	0.0180	0.1975	0.1869 (0.0400)	0.0069	0.3669
Monetary policy stimulus to GDP	0.0109 (0.6830)	-0.0417	0.0634	0.0485 (0.2273)	-0.0088	0.1281
Healthcare index	0.0053 (0.8266)	-0.0327	0.0634	-0.0309 (0.2819)	-0.0878	0.0259
Vaccination rate	0.0005 (0.9823)	-0.0410	0.0419	---	---	---
Infection rate	0.0083 (0.9280)	-0.1726	0.1891	-0.1106 (0.9253)	-2.4440	2.2228
Mortality rate	-0.1047 (0.5252)	-0.4305	0.2212	-0.2106 (0.0251)	-0.3966	-0.0246
Hospital beds per thousand people	0.1612 (0.1478)	-0.0591	0.3814	0.0020 (0.1097)	-0.0005	0.0045
Human dev. index	0.0542 (0.0450)	0.0007	0.0204	0.0104 (0.7252)	-0.0479	0.0686
Exports to GDP	0.0036 (0.6710)	-0.0132	0.0204	0.0017 (0.8662)	-0.0182	0.0216
FDI to GDP	0.0121 (0.5345)	-0.0264	0.0505	0.0062 (0.7751)	-0.0370	0.0495
International tourism to GDP	-0.3681 (0.0000)	-0.4649	-0.2713	-0.3413 (0.0000)	-0.4617	-0.2210
Adjusted R_w^2	0.5762			0.5053		
Deviance	0.0991			0.0993		
Observations	145			145		

Source: Authors' calculations.

Note: All regressions include a constant. P-value of the coefficients are reported in parentheses.

CONCLUDING REMARKS

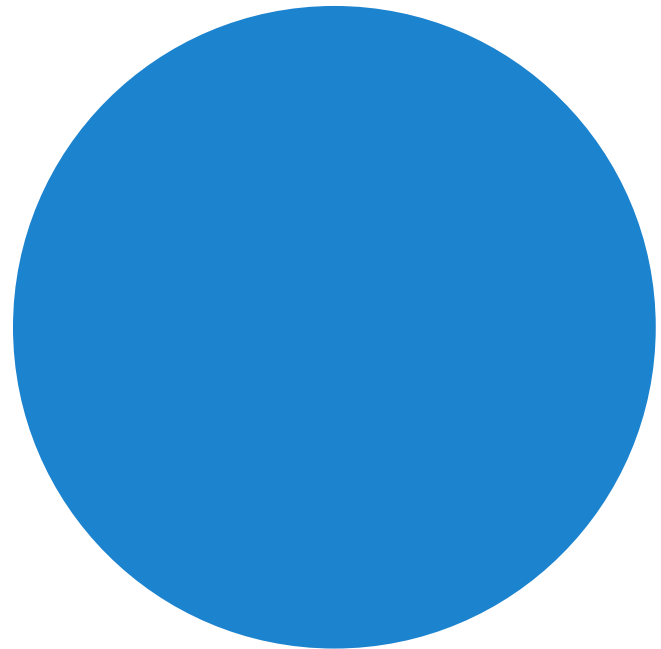
The COVID-19 pandemic has compelled countries to take a variety of unprecedented responses to limit human and economic costs. This paper analyzes the empirical relationship between the short-term economic effects and the COVID-related policy responses, including containment measures, healthcare interventions, fiscal and monetary stimulus packages, and vaccinations. The short-term economic impact is defined as deviations of the projected economic output or GDP over two years from the baseline prediction in the absence of the pandemic.

Simply examining the comparison of economic loss across economies serves to summarize those countries that have a greater improvement in their economic growth projection are prone to implement economic support packages more generously. The regression findings verify the effect of economic stimulus measures on economic loss mitigation; the relation implies that a 10-percentage-point increase in the fiscal stimulus size to GDP boosts gross income by between 0.81 and 1.98 percent. However, the direct economic effect of monetary policy is much lower due to its complementary role in maintaining the stability and functionality of the economic and financial system.

The statistical assessments also indicate that the containment measures, such as international travel bans, school closures, and workplace closures, have had precisely a detrimental impact on economies; an equivalent increase of a fifth

of the strictest lockdown measures would lessen the economic output by between -1.52 and -0.28 percent. Although the estimates of the immunization and the other non-pharmaceutical interventions, i.e., testing policy and contact tracing, yield zero economic effect in simple model specifications, their effects of economic support are empirically manifested in the current COVID-related economic literature using indirect and non-linear estimation techniques.

Incorporating the statistical findings of this article as well as some reviews of prominent literature, it is evident to infer that deploying the fiscal support packages and gradually easing lockdown strictness are necessarily effective in order to promote the short-term treatment for the economic contraction. However, appropriate execution of the other COVID-related measures might increase the ability to mitigate economic loss and pave the ground for recovery more sufficiently.



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THE PROGRESS OF TIMEBANK DEVELOPMENT IN THAILAND: A CASE STUDY ON TIMEBANKS UNDER THE SUPERVISION OF THE DEPARTMENT OF OLDER PERSONS

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Nonarit Bisonyabut*

Thailand became an elderly society in 2005 when 10 percent of the total population comprised elderly people, according to a report by the Foundation of Thai Gerontology Research and Development Institute (TGRI). Moreover, Thailand will become a super-aged society by 2031;¹ at that time 20 percent or more of the total population will be aged 65 and older. In this regard, Thailand's healthcare systems, economy, and society will experience various impacts due to being an elderly society, especially scarcity of younger people to fill the gaps in elderly care, a situation which could

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¹ Foundation of Thai Gerontology Research and Development Institute (TGRI) (2017). *Situation of the Thai elderly 2017*. Available from https://www.dop.go.th/download/knowledge/th1552463947-147_0.pdf.

adversely affect the quality of well-being for the elderly. Thus, it is important that mechanisms be found to prevent adverse effects.

The concept of a timebank has been suggested as one mechanism to reduce some adverse effects of an elderly society; timebanks are expected to be used to complement current elderly care systems. However, given that implementation is still at an early stage, understanding of strengths and weaknesses of using a timebank is important to ensure that the development of timebanks in Thailand takes the right direction.

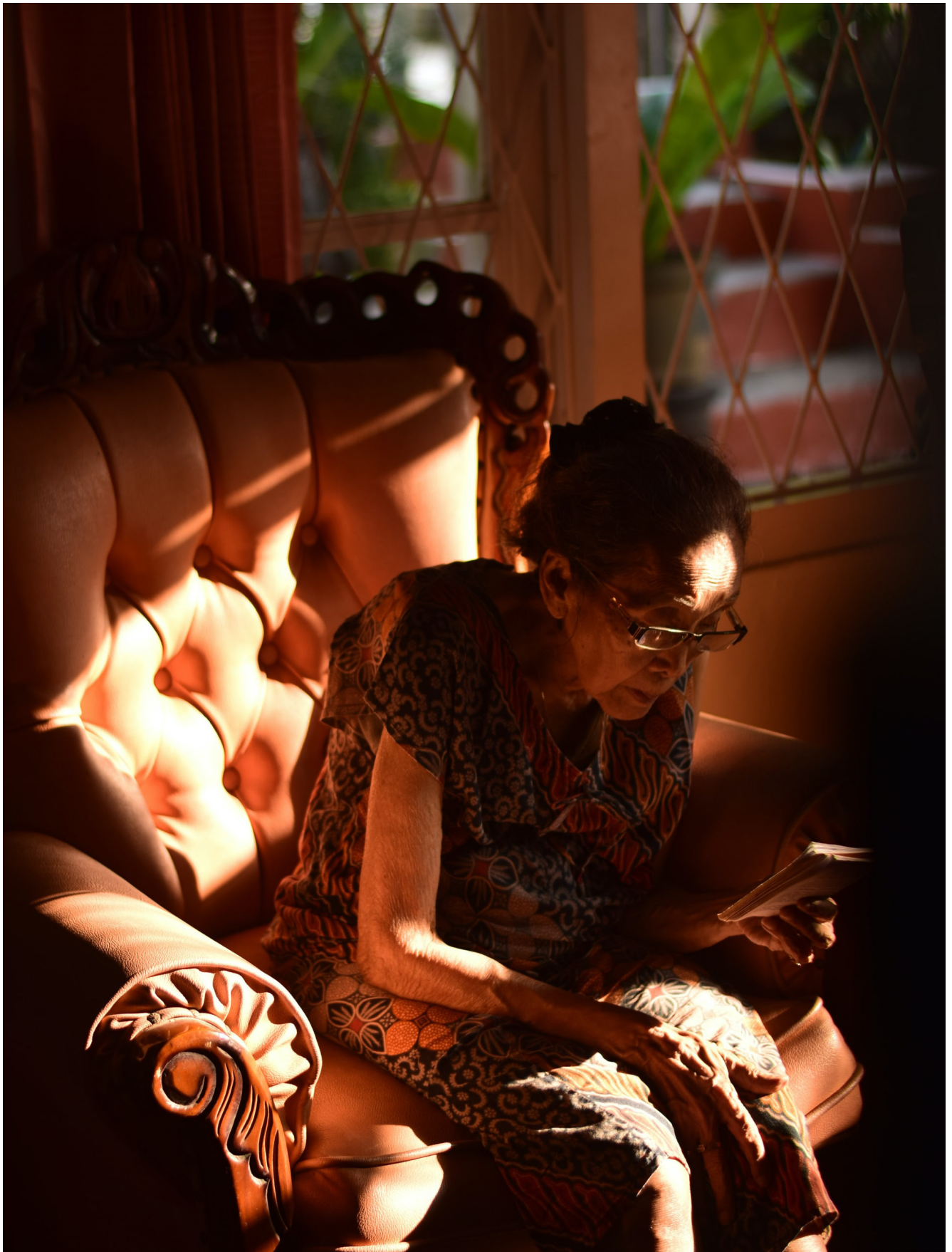
This article is aimed at assessing the progress of implementing a timebank under the supervision of Thailand's Department of Older Persons and to demonstrate some of the benefits that the community could take from a timebank.²

1. WHAT IS A TIMEBANK?

To summarize, the concept of a timebank involves the use of "time-based currency" in exchange for services. Currently, the timebank concept is mostly implemented by non-profit organizations or local communities, where it is used to complement voluntary systems: a time credit is given to members in exchange for services they provide instead of a free grant.

The idea of a timebank can be traced back to the early nineteenth century. The modern

² This article is based on the research project entitled "The evaluation of a timebank under the supervision of the Department of Older Persons: recommendations for improvement," submitted to the Department of Older Persons in 2021.



timebank was conceptualized more recently by Edgar S. Cahn as a service to increase individual and community well-being through giving and receiving – giving one hour of service for one time credit. Such credits can then be used to request a service from other members. Given that the exchanges are held by members of a community – under the neighbors-helping-neighbors model, the activities for exchanges are mostly offered and requested according to the members’ skills, such as providing minor home repairs, assisting in traveling (e.g., to go shopping or to the hospital), gardening, teaching, or hair cutting. The exchanges are not limited to individuals; some timebanks also offer organization-to-organization exchanges, which can vary between a one-to-one exchange, one to many, many to one, and many to many. Thus, everybody’s time and opportunity to exchange is equally valued because a timebank is operated under the concept of value of equality, where members are both equally receiving and giving through offering the use of their skills.³

Considering that a timebank is used for improving the community’s well-being, some of the benefits that could be furnished from implementation of a timebank are: (a) strengthening bonds in the community by enabling people to know each other better, (b) enhancing members’ everyday life skills, and (c) using alternate resources for financial inclusion.

³ Summarized from “What is Timebanking?” Available from <https://timebanks.org/what-is-timebanking/>.

2. DEVELOPMENT OF A TIMEBANK UNDER THE DEPARTMENT OF OLDER PERSONS

An imminent effect when becoming an elderly society is that it pressures the government to take practical action. The Department of Older Persons (DOP) under the Ministry of Social Development and Human Security collaborated with such affiliate organizations as the Thai Health Promotion Foundation to initiate a timebank in Thailand in 2018. According to the memorandum of understanding signed by the affiliated organizations on “the operation of a timebank for elderly care in Thailand,” the Thai timebank would be operated under the supervision of three organizations: (a) Department of Older Persons, (b) Thai Health Promotion Foundation, and (c) local governments (44 local governments are piloting timebanks).⁴

Therefore, each organization will take as its responsibilities the following:

(a) Department of Older Persons will study the appropriate practices of timebanks for Thailand’s context and adjust the practices accordingly. It will create: a guideline for the operation of a timebank for elderly care in Thailand; a timebank database to support the operation; and will give support to the pilot timebanks, including an evaluation and summary of the lessons learned from the pilot.

(b) Thai Health Promotion Foundation will select the potential local areas to initiate the

⁴ Memorandum of understanding between affiliated organizations on the operation of a timebank for elderly care in Thailand. Available from https://www.dop.go.th/download/implementation/th1592885116-1162_0.pdf.

pilot timebanks, and will give support to the pilot timebanks, including collaborating with DOP to summarize the lessons learned from this pilot.

(c) Forty-four local governments will initiate a timebank for the pilot study, by integrating the timebank for elderly care into local voluntary systems. Also, they will collect data for summarizing the lessons learned and collaborate with other pilot timebanks to share information on their experiences.

Given that the implementation of the timebank in Thailand as a support mechanism for the country's elderly society is a new concept that involves technical and operational complexities, DOP has been concerned that the implementation of timebanks needs to be efficient and bring benefits to the people. Hence, research on appropriate practices and improvement for current implementation is needed.

The research project “The evaluation of a timebank under the supervision of the Department of Older Persons: recommendations for improvement” was initiated to support implementation; it has four objectives, as follows:

(a) Review knowledge and participation experiences on timebanks in Thailand;

(b) Review and evaluate operational processes of timebanks in Thailand;

(c) Revise the DOP handbook of timebank operations so that it will be more appropriate according to the context of Thailand;

(d) Create policy recommendations for Thailand's aging society, using the timebank system.

The results of the research will be used by

DOP to improve the practices of timebanks under the supervision of DOP.

3. EVALUATION METHOD

In the research, the development of Thailand's timebank will be evaluated under the “three pillars” approach, which consists of three evaluation methods, as follows:

(a) Evaluation of the understanding of the timebank philosophy. This method will evaluate the understanding of the philosophy of a timebank⁵ and the necessity of using timebanks in selected areas. This evaluation will also be focused on a comparison between the period before and after the implementation of the timebank in order to comprehend whether a timebank is actually needed.

(b) Social Impact Assessment is an approach to analyzing benefits for the society as a whole, considering positive and negative impacts, and monetary and non-monetary impacts which go beyond the cost-benefit approach. The evaluation will consider five important factors: **(1) Inputs:** resources that are used to operate the timebank; for example, budgets, human resources – inside and outside of the timebank, knowledge and training, and the time used to initiate activities; **(2) Activities:** activities that took place in the timebank which can be separated into different categories, such as repairs and maintenance, housework, and elderly care (the activities are also separated as individual activities and group activities); **(3) Moderators:** analyze the

⁵ *The concept of modern timebanks according to Edgar S. Cahn.*

administrative system and process, such as initiation of the timebank, recruitment, administration, and problem-solving; **(4) Outputs:** analyze the outputs of the timebank, such as the number of members, which can be categorized by age, occupation, and related activities; and **(5) Outcomes and Impacts:** analyze outcomes and impacts of the timebank in terms of the settled area, such as according to individuals, to families, and to communities.⁶

(c) Logic Model: An approach to evaluate connections between factors, including input, activity, moderation output, and outcome and impact, which will lead to understanding about success of the timebanks, as well as problems or difficulties that may occur.⁷

The three pillars approach to evaluate the success of timebanks was conducted using an in-depth interview method, in which the moderators of each timebank were interviewed in order to grasp the current situation of timebanks in Thailand.

However, given that not every timebank in Thailand has operated long enough to have a result, local timebanks in this study were selected by a consultative meeting with representatives of DOP and stakeholders from the local timebanks, including using the DOP database of timebanks for consideration – for example, the timebank with

the highest level of savings and/or withdrawals. The research then filtered the recommended local timebanks using opinions from the meeting and statistics in the database, including the following criteria: (a) the selected timebank has outstanding performance, (b) the selected timebank has operated for a period of time, and (c) the selected timebank has to be supervised under DOP.

The following timebanks were selected for this study:

(a) Yannawa Timebank in Bangkok (recommended by the meeting)

(b) Wat Chaiyathit Timebank in Bangkok (recommended by the meeting)

(c) Buddhachinaraj Hospital Timebank in Phitsanulok (recommended by the meeting)

(d) Thap Than Timebank in Uthai Thani (recommended by the meeting)

(e) Wiang Karn Timebank in Lamphun (recommended by the meeting; the database was considered as outstanding for a timebank, with the overall accumulation of time being 108 hours)

(f) Nongtongpattana Timebank in Chiang Mai (recommended by the meeting; the database was considered as outstanding for a timebank)

(g) Ban Nai Dong Timebank in Phetchaburi (recommended by the meeting; the database was considered as outstanding for a timebank)

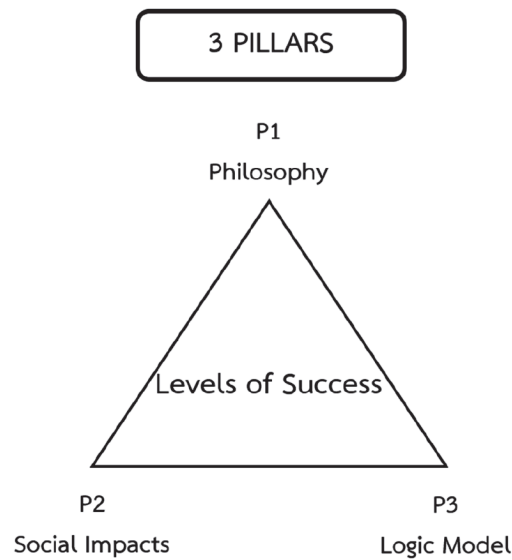
(h) Chong Lom Timebank in Kamphaeng Phet (recommended by the meeting; the database was considered as outstanding for a timebank, with the highest number of transactions at 27 hours)

(i) Na Khun Yai Timebank in Nakhon Phanom

⁶ Barrow, C.J. (2000). *Social Impact Assessment: an introduction*.

⁷ CDC. (n.d.). *Logic Models*. Available from <https://www.cdc.gov/eval/steps/step2/index.htm>.

Figure: Three pillars to evaluate the success of a timebank



Source: Authors.

(the database was considered as outstanding for a timebank)

(j) Watthana Timebank in Sakon Nakhon (the database was considered as outstanding for a timebank)

4. RESULTS

The evaluation of the selected timebanks elucidates outstanding characteristics that show the factors for successful implementation. The outstanding characteristics of each timebank in this study can be summarized as follows:

(a) Yannawa Timebank – Bangkok

Yannawa Timebank was initiated under the Rotary Club of Bangkok-Rattanakosin, an independent humanitarian service club. The president of that branch sees the timebank as an important sustainable process to support its volunteers.

Yannawa Timebank is a leader in using

information technology (IT) to support its operations, such as the Rotary Club’s time database and social network used to augment its operations.

Activities in this timebank are generally related to the Club’s social services. For example, if a wat (Buddhist temple) needs support for merit-based activities, such as “pook pah” (decorating a place with colored cloth), the timebank will schedule the activity for the exchange of services and invite its members to join.

Moreover, this timebank has implemented an extra trading system by using time credits to trade for consumption items, which come from donations, instead of allowing only the exchange of time credit for time credit, which is similar to the goodness bank⁸ system.

⁸ Goodness bank is a volunteer system through which members achieve a so-called goodness credit from doing good in the community. The goodness credit can be used in exchange for consumption goods.

(b) Wat Chaiyathit Timebank – Bangkok

Wat Chaiyathit is located in a very urbanized old area of Bangkok. Before the implementation of the timebank, there was a school for elderly people there. Activities of this timebank are developed according to its members' needs, such as hairstyling, house cleaning, and assisting members to get to hospital.

This timebank uses an honor system for documenting the time credits – a trust-based system that allows members to document their completed exchange for the credit without requiring a detailed examination of the work done. This timebank also implements a trading system for donated items similar to that of the Yannawa Timebank.

(c) Buddhachinaraj Hospital Timebank – Phitsanulok

The timebank in Buddhachinaraj Hospital began with the chief executive's vision to implement a timebank as part of the hospital's voluntary system. This timebank also connected its members to other voluntary systems around Phitsanulok, using informal connections, such as the Northern Elderly Club, Rotary Club, Hairdressing Club, Rotaract Club of Naresuan University.

Activities in this timebank are created to support the hospital's voluntary system, such as the "clinic bao jai" (therapy preparing for the end of life) by giving support on end-of-life care, or assisting in the hospital's queuing system.

The implementation of the timebank for Buddhachinaraj Hospital is different from that of most other timebanks covered in this study, because

the hospital is not directly supported by, or a part of, DOP, but was initiated in collaboration with all the parties concerned. Moreover, as the timebank is located in a hospital, the exchange activities there are determined according to the environment which is focused on support for the hospital's operations instead of demand from community members. Time trading in the Buddhachinaraj Hospital Timebank is different from that of most other timebanks, due to its being a hospital. The trading is mostly between persons-to-hospital, which creates a problem of time debt for the hospital – up to 1,000 hours.

The Buddhachinaraj Hospital Timebank also leads in using IT systems to support its operations, such as using YouTube or Facebook for making an announcement or publicizing timebank activities. This also includes documenting the time credit using the LINE application instead of a traditional ledger.

However, the sustainability of the timebank could be an issue of concern as the hospital is not directly supported by, or a part of, DOP. It needs to manage its own finances and administration. Hence, funding might be an important issue for this timebank over the long term.

(d) Thap Than Timebank – Uthai Thani

Tambon (subdistrict) Thap Than has a strong local community – families and relatives are close to each other. Before the beginning of the timebank, the local area already had an outstanding school for the elderly and goodness bank, which provided solid foundations for initiating the timebank.

An important characteristic of Thap Than Timebank is the use of the local areas as a visiting

observation site. Allowing organizations from outside to observe the implementation of the voluntary systems here.

Moreover, there is an incentive mechanism that Thap Than Timebank has created, using a community gathering, certificate, or medallion to promote a person who does good things for the community, which encourages people to do more good things.

The municipality office is also an important driving factor to support the local elderly. If elderly people here are in need of help, the municipality office may offer support, using the municipality office workers for the purpose. Furthermore, activities in Thap Than are created mostly to solve community problems; such activities are initiated by the local leader who understands well the issues that occur here.

(e) Wiang Karn Timebank – Lamphun

Wiang Karn Timebank was initiated to solve the lack of funding for the elderly care.

The outstanding characteristic of Wiang Karn Timebank is the determined promotion of the timebank among the local community by using a monthly community gathering and elderly allowance payment to provide information to the community about the timebank's activities.

Moreover, the timebank also changed the minimum age for joining the timebank, from 18 years of age to 13 years. This helped to expand the number of members able to help support elderly people.

However, despite these outstanding characteristics, activities in this timebank are not

that varied as they are tied to voluntary activities focused on elderly support.

(f) Nongtongpattana Timebank – Chiang Mai

Tambon Nongtongpattana has strong local voluntary systems, which emerged from the bonds in the community. Volunteers provide support for elderly people at home, in temples, and among community leaders.

In Nongtongpattana, the voluntary systems, including the timebank, are tied to the local health station, which is used as the center of activities.

Activities in this timebank are developed from traditional local activities, such as cutting grass in public places, and harvesting rice and longan as a group.

(g) Ban Nai Dong Timebank – Phetchaburi

Tambon Ban Nai Dong uses voluntary systems to help support the local community, such as village safety volunteers, creative activities for social clubs, and health promotion activities initiated by the local health station.

Ban Nai Dong Timebank is supported by the municipality office, which gives support to workers, finances, and space to use as an office.

This timebank has an exceptional characteristic: using retirees or former professionals to help support the operation, such as using a former banker as a timebanker. This timebank also uses local village leaders to help connect the timebank to local members in each village. The local community has a close relationship; members of the timebank can exchange their time directly with each other without involving the time manager.

Furthermore, due to this characteristic, members are using direct telephone calls to request exchanges instead of using a LINE group as is done by other timebanks.

(h) Chong Lom Timebank – Kamphaeng Phet

Tambon Chong Lom has a great voluntary foundation, with a strong goodness bank and health volunteers. Moreover, it also is characterized by strong unity between each generation that is shown through some activities, such as “tonkla punt mai sai jai wai gao” (young “seedlings” care for the elderly), which encourages members of the young generation to give support to local elderly people and expand members’ age ranges in the timebank.

Activities of the Chong Lom Timebank are developed to fill gaps in local elderly care. Examples are young people gathering herbs for foot baths for the elderly, the local temple donating milled rice and instant foods to the elderly, monks giving sermons to elderly people in their home, supporting the health station’s health activities using the timebank, and using the timebank to support a self-sufficient economy in the local community. Time saving in this timebank has also been purposed under the same principles – to support the needs of the community; thus, the timebank officers are gaining time credit as they work on activities related to the timebank. However, due to strong volunteer ethics, some choose not to accumulate their time but donate it for free as a volunteer.

To incentivize members to help the community frequently, Chong Lom Timebank uses local media and social networks as a mechanism to promote

the timebank. For example, using a community gathering to announce outstanding members, or using YouTube and Facebook to promote its activities.

(i) Na Khun Yai Timebank – Nakhon Phanom

Tambon Na Khun Yai has strong community systems that are based on knowing its members’ traits. Hence, the timebank was developed here because the mayor saw the importance of improving knowledge of the community’s skills by using the timebank system, which is supported directly by the municipality office.

Activities in Na Khun Yai Timebank are based on existing community services, such as house repairing, assisting the elderly to go to hospital, reading and singing for elderly people, cutting grass, and harvesting rice.

However, one of the issues facing this timebank is the lack of new members; recruitment for new members is needed to make it sustainable.

Na Khun Yai Timebank has an outstanding characteristic, which is tracking and evaluating the results of timebank activities. The system is used to understand both the effectiveness and impairments that members experience, based on the government reporting system. This system also helps to increase its activities, because positive results are likely to encourage members to do more.

(j) Watthana Timebank – Sakon Nakhon

Tambon Watthana has a strong local community based on group activities, such as rice harvesting as a group, goodness bank, garbage bank, school for the elderly, and local savings fund.

Tambon Watthana initiated its timebank to

help support a goodness bank, as there was a problem with funding that reduced its sustainability due to the limited availability of consumption goods for exchange.

Besides the support it receives from the municipality office, it has an exceptional characteristic of bringing respected figures into the community to help administer the timebank, such as having a famous local monk serve as supervisor, and using local leaders to connect the timebank with each village.

Furthermore, the Watthana Timebank also has strong characteristics in combining “time” and “goodness” credits; members can freely exchange their credits between time and goodness (100 points of goodness for 1 hour of time). Moreover, instead of recruiting members in person, Watthana Timebank recruits members from households, which increases the variety of skills and capacity of members.

4.1 Shared outstanding characteristics of timebanks

Apart from individuals’ outstanding traits in each timebank, there are also some shared outstanding characteristics in most of the timebanks.

First, the LINE messenger service has a central place in communication. This service enables members of the timebank to discuss, chat, and ask for trading, including time documentation, without requiring their physical presence.

Second, the support provided by the local municipality office plays a vital role in supporting the timebank’s operations. If a local municipality is strong and determined to support its timebank, the chance of success will be high.

Third, support from the Department of Older

Persons, especially its local branches, helps local timebanks in terms of knowledge and training. Examples are timebank workshops, teaching, and grants for publicity. DOP also plays a vital role in sharing knowledge and information on experiences among local timebanks.

4.2 Measuring success

The first evaluation is the measure of success according to the first pillar. Success is categorized into three levels, which are determined by the success of the implementation of timebank in each local timebank, including the necessity of using the timebank in the local community and comparing the situation “before and after” implementation of the project.

Details of the level of success are as follows:

Level 1 is the lowest: lack of necessity for using the timebank system.

Level 2 is an early success: the local timebank has the potential to further improve the use of the timebank.

Level 3 is a middle level of success: the local timebanks show their ability to implement “time-based currency” properly and can use the timebank to support the community’s well-being.

Table 1 shows the level of success of each local timebank.

The next evaluation is efficiency and effectiveness, according to the second pillar, using statistics on the number of members that actively exchange and the time that is used. The level of efficiency is calculated by the number of active

Table 1: The level of success of each local timebank

Level of success	Timebank	Details
Level 1 (lowest)	Thap Than	Still using the “goodness bank” instead of exchanging time credits
Level 2	Yannawa Buddhachinaraj Nongtongpattana Watthana	Creating activities by using the timebank to support local communities. However, time withdrawal and exchanges are underdeveloped
Level 3 (highest)	Wat Chaiyathit Wiang Karn Ban Nai Dong Chong Lom Na Khun Yai	Already using time-based currency and exchanges to support local communities, which have the potential to develop the timebank further

Source: Authors.

members who contributed to the total accumulated time of the timebank.

Table 2 shows the efficiency of each local timebank, in which the timebanks are ordered by the efficiency points.

The efficiency of the timebanks is also examined by determining the outstanding characteristics of each timebank. The evaluation of efficiency here is determined by whether the timebank has achieved

its goals or not by using a “yes/no” checklist to evaluate the achievement of inputs, activities, and operational processes.

Table 3 shows the efficiency of each local timebank according to its outstanding characteristics. Most of the timebanks achieved their goals. Nongtongpattana and Ban Nai Dong achieved two out of three goals, while other timebanks achieved all their goals.

Table 2: Efficiency of each local timebank by the active exchange

Timebank	Date started (B.E.)	Members (persons)	Active members (persons estimated by informants)	Total accumulated time of timebank (hours)	Time used per active member (efficiency)
Na Khun Yai	Sep 61	159	25	2,385	95
Buddhachinaraj	Jan 63	119	60	3,984	66
Wiang Karn	Aug 61	103	60	1,413	24
Yannawa	60	60	40	517	13
Watthana	62	50	40	450	11
Chong Lom	Oct 61	252	50	450	9
Ban Nai Dong	Jun 62	80	40	120	3
Thap Than	Nov 62	80	-	-	-
Wat Chaiyathit	62	50	17	n/a	n/a
Nongtongpattana	62	80	40	n/a	n/a

Source: Authors' calculations.

Table 3: Efficiency of each local timebank according to the outstanding characteristics

Timebank	Inputs	Activities	Processes
Yannawa	✓ Developed by the Rotary Club	✓ Based on the Rotary Club's activities	✓ Implemented IT systems to support the timebank
Wat Chaiyathit	✓ Developed from a school for the elderly	✓ Based on the school for the elderly's activities and members' needs	✓ Exchanged credits for consumption goods
Buddhachinaraj	✓ Set up under the hospital and supported by the chief executive	✓ Based on existing activities in the hospital	✓ Documented time using LINE and promoted the timebank using Facebook and YouTube
Thap Than	✓ Uses the local communities as visiting observation sites	✓ Activities created by the local leader	✓ Participation was for the sake of "goodness"
Wiang Karn	✓ The municipality office focuses on elderly support	✓ Created activities to support the elderly	✓ Used community gatherings for publicity
Nongtongpattana	✓ Strong community services	Based on existing activities in the community	
Ban Nai Dong	✓ The municipality office helps support the operation with a variety of existing community services		✓ Used former professionals and local leaders for administration
Chong Lom	✓ The municipality office helps support the operation	✓ Based on existing activities in the community	✓ Paid the people that operate the timebank with time credits
Na Khun Yai	✓ The mayor helps support the operation, with a variety of existing community services	✓ Based on existing activities in the community	✓ Tracking and evaluation systems were utilized
Watthana	✓ Strong local support based on rural activities	✓ Based and developed on existing activities in the community	✓ Recruited members from households

Source: Authors.

Table 4: Effectiveness of each local timebank according to the community needs

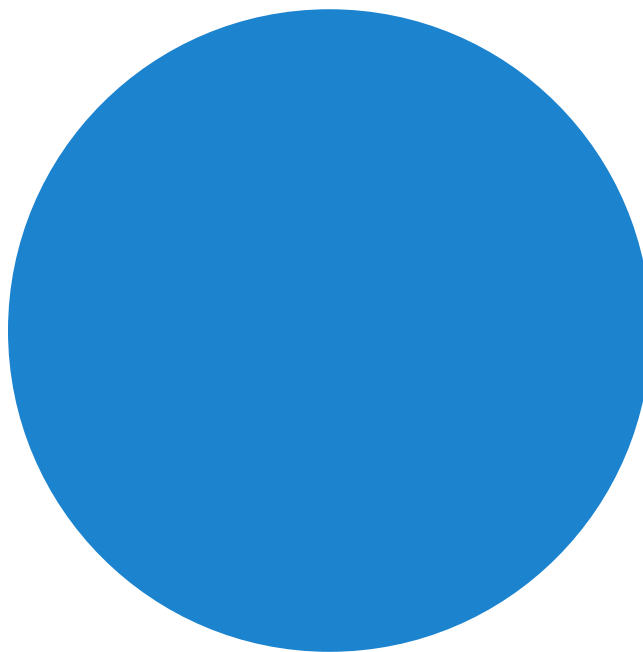
Timebank	Objective	Outputs and outcomes	Effectiveness (Achieving objectives)
Yannawa	Advancing the Rotary Club's activities and increasing the sustainability of volunteers in an aging society	Used time-based currency for trading activities between members; however, the activities are limited due to a lack of variety of skills, as members have a similarity of socio-economic and professional backgrounds	Partially effective
Wat Chaiyathit	Support local community volunteering	Advanced existing local community volunteering	Effective
Buddhachinaraj	Support the aging society, especially single families that do not receive support from the young generation	Advanced existing local community volunteering	Effective
Thap Than	(The time-based currency system was not initiated)		
Wiang Karn	Offset limited elderly support funds	Used time-based currency to support the elderly	Effective
Nongtongpattana	Make the voluntary systems sustainable	Using time-based currency for trading activities between members; however, there is concern about long-term implementation	Partially effective
Ban Nai Dong	Using the timebank to support community database, especially on skills	The community has a close relationship, which helps increase the number of activities	Effective
Chong Lom	Offset limited elderly support activities	Advanced existing local community volunteering for the elderly. Also created new activities by using the timebank	Effective
Na Khun Yai	Documenting the unity in the community and increasing sustainability	Advanced existing local community volunteering for such purposes as house repairing, assisting the elderly to go to hospital, reading and singing for the elderly, grass cutting, and rice harvesting	Effective
Watthana	Overcome sustainability issues of the goodness bank that are due to its reliance on donations	Advanced existing local community volunteering using time-based currency to solve the issues	Effective

Source: Authors.

The evaluation of effectiveness is determined by the response of the timebank to community needs – considering whether a timebank is needed or not, and whether the timebank effectively accomplished its objectives.

Table 4 shows the effectiveness of each local timebank according to the communities' needs. Most of the timebanks were found to be effective in responding to those needs. However, Yannawa is only partially effective because of the lack of variety in terms of skills among members, which resulted in the absence of exchanges. Nongtongpattana is also partially effective because of a concern about long-term implementation, given that the local community already achieved the neighbors-helping-neighbors model without the timebank; hence, the voluntary activities may not need a timebank system to incentivize the sharing of assistance. Thap Than is an exception because there was no initiation of exchanges for time credits.

Given that the current implementation of the timebank is used as a support mechanism for the elderly society, as most of its members are elderly persons, sustainability of the timebank system may become an issue in the future due to the lack of members among the new generation. Hence, the timebank may need to expand membership beyond aging members. In this case, the timebank may need to expand the age ranges to persons younger than 60 years of age, which would also provide benefits to those younger members in preparation for their own aging process.



For this reason, timebanks should be not only a support mechanism for the elderly but also seen as a preparation for the inevitable aging of the younger population. Hence, this research has evaluated the use of timebanks as a preparation mechanism for the eventual aging of young people.

Table 5 shows the effectiveness of each local timebank as a preparation mechanism for the eventual aging of young people, in which timebanks are ordered by the percentage of the members younger than 60 years of age. Half of the timebanks in this study have already achieved this goal.

Table 5: Effectiveness of each local timebank as a preparation mechanism for the eventual aging of young people

Timebank	Number of members (persons)	Members younger than 60 years of age (persons)	Percentage of members younger than 60 years of age	Effectiveness
Buddhachinaraj	119	103	86.5	Effective
Chong Lom	252	202	80	Effective
Na Khun Yai	159	95	59.7	Effective
Ban Nai Dong	80	42	52.5	Effective
Wiang Karn	103	46	44.6	Effective
Thap Than	80	10	12.5	Not effective
Wat Chaiyathit	50	2	4	Not effective
Yannawa	60	0	0	Not effective
Nongtongpattana	80	n/a	-	-
Watthana*	50	-	-	-

* *Watthana counts its members as household.*

Source: Authors.

5. CONCLUSION

Timebanks in Thailand currently have the potential to develop further. Most of the timebanks covered in this study have achieved the goal of using the timebank, and the implementation of the timebanks is mostly effective.

Each local timebank in this study has a different level of development, as follows:

The first level is the timebank which does not implement a time-based currency in its operations, given that the local communities already have a strong foundation of voluntary systems that do not demand the use of a timebank. The timebank at this level is Thap Than Timebank.

The second level is the timebank with the potential to further implement the timebank system. The timebanks at this level show that they have used the timebank mechanism to help support the local communities, including

creating activities involving the use of time-based currency. However, the exchange and the withdrawal of time credits are still lacking due to various limitations of the communities, such as diversity in the skills of members, and not fully implementing the concept of time credits according to the philosophy of timebanks. Timebanks at this level are Yannawa, Buddhachinaraj, Nongtongpattana, and Watthana.

The third level comprises the timebanks with the potential to use the timebank system. The timebanks at this level show that they are already using time-based currency and exchanges to support the local communities according to the philosophy of timebanks. The timebanks at this level are Wat Chaiyathit, Wiang Karn, Ban Nai Dong, Chong Lom, and Na Khun Yai.

When considering the efficiency levels for the 10 local timebanks, the research found that, in

general, every timebank in this study attempted to develop its own process of operation and exchanges according to the needs of their communities.

When considering the result of effectiveness, the use of a timebank to respond to communities' needs, the research found that, in general, most of the timebanks in this study could implement the concept of a timebank to respond effectively to their communities' needs. The timebanks that succeed in this regard are Wat Chaiyathit, Buddhachinaraj, Wiang Karn, Ban Nai Dong, Chong Lom, Na Khun Yai, and Watthana. However, some timebanks were only partially effective in that regard due to limitations of the local communities, namely, Yannawa and Nongtongpattana.

In conclusion, considering the general results of the operations of the 10 local timebanks, the research found that the timebanks that developed at the second and third levels have the potential to be used as a support mechanism for Thailand's elderly society, and should get support to operate further. However, the contexts of each local community will bring different limitations, so there might be some issues that could prevent the implementation from achieving success.

Hence, to assure that the operation of timebanks will be successful, a mechanism to help solve issues related to community limitations needs to be created. This research suggests that DOP needs to expand the operation and concept of timebanks more broadly by considering the concepts between (a) the traditional

timebank, and (b) a timebank+ (plus), the details of which appear in the policy recommendations section.

In this respect, given that there are issues in timebank operations, this research found problems in the operational processes of timebanks in Thailand, which are summarized as follows:

- The current attitude toward implementing timebanks is to focus on elderly support instead of everyone in a community; thus, there is a gap in recruiting people from young and working age groups as members.
- Timebank members likely have different preferences on exchange; some may prefer to trade for consumption goods, while others may prefer to work as a volunteer to get praise, still others may prefer to work as a volunteer for free, and finally some may prefer to accumulate time credits for future use. Adjusting the details of a timebank according to a variety of preferences is still an issue.
- Time managers need to have free time to help operate the timebank; thus, they may need to spend time away from their primary job. Some time managers are hired under a one-year contract, which requires financial support to continue operations.
- Neutral persons are needed to connect the local timebank and the local members, including for administration and solving conflicts.

- A complicated system will discourage people from joining a timebank, such as the need for documenting time at a physical location.
- Inflexible time-based activities may limit exchanges because some members might not have enough free time to engage.
- Non-members do not have time credits to spend, and some timebanks have not yet implemented time spending.
- Diversity in the skills of members is needed. The limitation of exchanges has emerged from a lack of diversity in skills among members.
- Currently, some members cannot reciprocate the services due to some limitations, such as being bed-ridden patients. A reciprocal mechanism is needed to fill this gap.
- In case the timebank chooses to implement an exchange of time credit for consumption goods, a fundraising mechanism will be needed. However, the exchange of time credits for goods under the timebank's philosophy is questionable.
- Some members may want a membership shirt as a symbol of being a member.
- The local community expected to get support on finances, without which they might not be interested in participating.
- Some activities need funding. For example, sewing dolls may require 30,000 baht for materials and paying an instructor, or haircuts for heroes have expenses connected with traveling, location, and foods and drinks

for the persons involved.

- Sustainability of the timebank is an important issue, as there are concerns about whether the timebank will continue further, can members withdraw their credits in the future, and can members transfer their credits to their relatives. Having a central timebank similar to the Central Bank of Thailand may help assure sustainability.

6. POLICY RECOMMENDATIONS

6.1 Recommendations for the Department of Older Persons

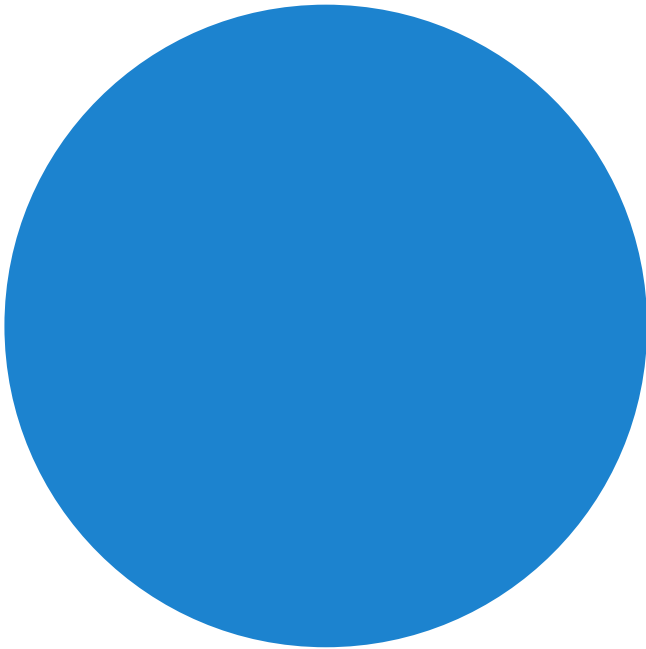
To expand the operations and concepts of timebank further, the recommendations for DOP are separated into two directions, as follows:

6.1.1 Using the traditional timebank concept

This operation requires the timebank to be operated according to the “traditional timebank concept,” which is focused on the accumulation of time credits from exchanges, saving and withdrawing, and equal opportunities to exchange between members. This direction is not different from the current concept of a timebank, which has already appeared in other research studies on timebanks and the existing handbook of timebanks.

6.1.2 Implementing the timebank+ concept

This operation will apply the concept of time-based currency loosely. By focusing on the concerns of the context and issues faced by local communities which use the timebank to solve those issues. In this case, the exchange of a time-based currency may change according to the needs of the communities.



Hence, the time-based currency may be used for other purposes than described under the philosophy of a classic timebank depending on the needs of the community, such as allowing members to convert time credits to goodness credits, or alternatives, such as trading time credits for consumption goods, rewarding the person who does good things to the communities through a timebank with a certificate, or medallion. The concept of exchange may expand from individuals to households, in which case the members of the household may reciprocate instead of the member that gets help.

Both directions have their limitations.

The traditional timebank concept was developed according to the Western characteristics

that promote individuality; thus, the concept is more appropriate to implement in a modern, urban society, such as the workplace or formal organization. Given that this concept relies on using the timebank activities to trade time-based currency, this may limit the scope of operations and affect the number of members in the timebank.

The timebank+ concept is focused on applying the concept of a timebank according to the context and needs of the local communities. However, due to the different contexts and needs of each local community, there may be some issues: (a) a certain direction of implementation and operation, including lack of a successful case of study, and (b) issues related to sustainability, considering that this concept allows an exchange beyond time credits.

6.2 Recommendations for improving the efficiency and effectiveness of timebanks

From the evaluation of timebank efficiency and effectiveness, including reviewing outstanding characteristics, important factors that make the implementation of a timebank successful are as follows:

- **Founding factors:** the local community that implements the timebank needs to have a strong foundation of a community voluntary system, such as a voluntary system that emerged from such a cultural foundation as group rice harvesting, or having existing organizations, such as the municipality office, learning centers, voluntary organizations, temples, local leaders, and goodness bank.

- **Members and activities:** the timebank should be initiated by the existing community and develop its activities to advance existing local community voluntary systems by using a time-based currency to solve problems.
- **Reciprocity:** members' attitudes toward the timebank need to be identical. Hence, the timebank needs to produce a clear guideline on how time-based currency will be used. In some contexts, the timebank may have a flexible exchange system, such as members exchanging their points for time credits, goodness credits, or consumption goods.
- **Funding:** the timebank has operational costs; thus, fundraising from acceptable sources is important. The timebank may raise funds by using (a) the municipality office budget, (b) Department of Older Persons funds, (c) donations, (d) time-based currency (paid with time), (e) other sources, such as a non-profit shop in a hospital, or sponsorship from other organizations. If the Department of Older Persons could provide 10,000-20,000 baht to support each local timebank, its operations may become more effective.
- **Location:** the members have to be able to travel to the timebank's physical location conveniently or use alternatives, such as digital channels (e.g., a Google form), including asking a local coordinator to communicate with the local timebank.
- **Publicity:** the timebank needs constant publicity to be sustainable, such as using a community gathering, school for the elderly, or social network to promote the timebank.
- **Administration:** the management of the timebank needs strong leaders and regular support to be effective. Furthermore, using respected figures in local communities and/or former professionals related to banking may increase effectiveness.
- **Symbol:** the members may need a symbol or logo for the organization. A timebank's shirt may be used as a group symbol of membership.
- **Skills:** a diversity in skills of members is important to support a variety of exchanges, given that the members will likely ask for support for skills they do not have. Finding common activities that the members can work on together or recruiting a household may also solve this limitation.
- **Data gathering:** data may be used for matching purposes, which leads to the matching between members with appropriate skills and tasks. Data-gathering systems may use (a) database software, (b) LINE calls that can connect to the central timebank, and (c) local coordinators who will connect to the central timebank.
- **Incentive mechanisms:** showing the achievement of members can increase the number of activities. Hence, the local timebank needs to have incentive mechanisms,

such as praising a person in public meetings, giving a certificate or medal, and promoting the members through social networks.

- **Documenting:** time documenting needs a clear guideline on how it works. The precise rules need to be set on gaining time credits and exchange methods, such as exchanges between a member and another member, or member and non-member. Moreover, time documenting needs to be burden-free, using LINE or software instead of a traditional ledger may be a good alternative.
- **Withdrawal:** the timebank needs to have a proper withdrawal system and rules, given that members will likely have different preferences. Examples are that some may want to save time credits for long-term use, others may want to use time credits in the short-term, and still others may not want to save the time credits, preferring to transfer them to others.
- **Tracking and evaluation:** the timebank needs to set up tracking and evaluation systems to follow up on the activities between members. Thereafter, data may be used to improve the quality of services, including to generate new activities.
- **Sharing information on experiences:** such sharing between each local timebank is important, as the timebank may gain new knowledge and understand the problems that may occur in other timebanks.
- **Continuity and sustainability:** the sustainability of the timebank may be fostered by three important factors: (a) the government sectors related to timebanks at every level need to be consistent with the policy on timebanks, (b) a central timebank of Thailand needs to be created for sustainability, and (c) the organization that implements the timebank system needs to be stable in using the timebank.

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