Identifying Participation in A Government Program: Empirical Evidence from Thailand

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Received November 11, 2024
Revised December 17, 2024
Accepted December 27, 2024

Abstract
A government cash handout program during the COVID-19 pandemic aimed to alleviate households' expenditure burden and to stimulate households' consumption spending. Many households participated in such program whilst others did not. This study seeks to identify the factors explaining at least one member in a household participated in the government cash handout program, of which the cash transfer was made through *'Pao Tang'* application on smartphones. Using the 2021 nationally representative household survey of expenditure and income in Thailand, the results of a Probit model reveal that economically disadvantaged households were less likely to participate in the government cash handout program compared to better-off households. Households with accessibility to internet service were more likely to participate in the program, as the internet connection was required when making a rebate on the payment through '*Pao Tang*' application on smartphones. Additionally, the nexus between age and mobile technology adoption is also evident in this study, underscoring the prominent role of age, particularly in the older age group of household heads. In detail, the results show that older heads of household were less likely to participate in the government program than younger ones. Even within the group of households that had accessibility to internet service, the findings remain unchanged: older heads of household had a lower probability of participating in the government cash handout than the younger ones. This could be attributed to the unfamiliarity and unpreparedness of mobile technology adoption among older heads of household. The findings suggest that inclusive practices for population with diverse digital skills, besides a multiplier effect on consumption and subsequent income levels, in a cash transfer program should be taken into consideration in a policy design. Particularly for a digital technology-related program, familiarity with and preparedness for mobile technology adoption, along with accessibility to the internet, should be taken into account in order to overcome participation barriers.

Keywords: Cash transfers, inclusiveness, ageing, digital technology, Thailand.
JEL Classification Code: H31, I38, I39, J18

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1.Introduction and literature review

The outbreak of the COVID-19 in 2019 had a substantial adverse economic impact on many countries worldwide. In Western countries, Anyamele et al. (2022) found that a substantial number of households in the U.S. lost their employment income. The impact of income loss varied across different ethnic groups, with the highest proportions found among Hispanics and Blacks (Anyamele et al., 2022). In the San Francisco Bay Area, Martin et al. (2020) found that, in a scenario without social protection, the poverty rate was estimated to rise to almost 26%, with the most economically disadvantaged individuals suffering the most. In the European Union, Almeida et al. (2021) found that lower economic-status households suffered from a reduction in the disposable income. In East Asian countries, Qian and Fan (2020) showed that individuals living in the areas most affected by the pandemic had a higher probability of income loss; as a result, existing economic inequalities could be enlarged.

The adverse effect of the COVID-19 differed across different groups of populations. Midões and Seré (2022) found that, using the Household Finance and Consumption Survey by the ECB in seven EU countries, almost one-fifth of individuals would not have had sufficient savings to afford the living necessities, such as food and accommodation, if they were unemployed for three months. The vulnerable groups included migrant individuals born in foreign countries, single parents and women (Midões & Seré, 2022). From a gender perspective, Dang and Nguyen (2021) indicated that women had almost one-fourth higher probability of permanent job loss than men; as a result, women's earnings would have fallen substantially behind men's. In China, Long et al. (2021) found that migrant workers and those who worked in manufacturing and small businesses were more likely to experience a reduction in wage income.

In response to the job losses experienced by individuals and the reduction in household income, governments in many countries implemented different fiscal stimulus measures in addition to the existing social safety net. It must be noted that unemployment benefits under the social security system were available to the formal workers while the informal workers had to rely on their own financial buffers during a financial distress. Therefore, a government stimulus measure could alleviate the financial hardships faced by households at some extent. Brewer and Tasseva (2021) showed that there were government interventions in 2020 that lessened the effects of household income loss, for example the Coronavirus Job Retention Scheme. When compared to Universal Basic Income, government intervention during the pandemic provided more financial aid to those highly effected by a negative shock in the labor market; however, it might not have aided all vulnerable groups (Brewer & Tasseva, 2021).

Empirical evidence in Southeast Asian countries is in line with those in Western countries. Bui et al. (2022) conducted representative consumer surveys in Thailand and Vietnam. Their findings show that financial aids to households was positively associated with consumer sentiment and the increase in expenditure on durable goods. Komin et al. (2021) pointed out that most informal workers relied on their own savings, and some may have accumulated debt in order to support for their living expenses. Despite the provision of income support programs, less than half of the informal workers received the underlying financial aids (Komin et al., 2021). Paweenawat and Liao (2024) employed a 2018 – 2021 Labor Force Survey data and find that the economic disruption caused by the pandemic affected the workers who were less educated, being young adults and having children the most. Regarding the earnings, employees having children, especially the female workers, were more like to have a wage reduction (Paweenawat & Liao, 2024).

The government cash handout program has been evolving with an increasing use of digital technology. In the past, the government cash handouts were distributed to the recipients at a designated government office with their identification presented. Later on, the government cash handouts were transferred directly into the recipients' bank accounts. At present, the government cash handouts can be transferred directly into the recipients' digital wallet in smartphones. Satchanawakul et al. (2023), using a sample of approximately 800 Thai older persons who held a state welfare card, found that different degrees of digital competency and skill among older populations may have caused uneven access to the government program. Their findings also reveal that more than half of the elderly with low income experienced a decline in household income and around one-third of them faced job losses.

To my knowledge, this study is the first that investigates the participation of Thai households in the government cash handout program through '*Pao Tang*' mobile application by using a nationally representative household survey. Populations from diverse socio-economic background and in different age groups may have engaged in a government program differently. This study aims to identify the factors explaining at least one member in a household participated in the government cash handout program through '*Pao Tang*' mobile application. We hypothesize that accessibility to internet service plays a role in the participation of household member in the cash handout program as the internet connection is required when making a rebate on the payment through '*Pao Tang'* application on smartphones. Another hypothesis is that older age group of household heads has a lower probability of participating in the cash handout program compared to the younger age group of household heads.

The organization of study is as follows. Section 2 presents the government cash handout through '*Pao Tang*' application. Section 3 presents the research framework. Section 4 presents the data and methodology. Section 5 provides the results. Conclusion and policy recommendation are presented in Section 6.

2. The government cash handout through '*Pao Tang*' application

The COVID-19 pandemic situation in Thailand that started at the beginning of 2020 has had a wide and lasting impact on the economy. In 2020-2021, with the severe COVID-19 outbreak, economic activities were halted; factories were closed; and, travel was restricted. Particularly in 2020 that travel was restricted and close contact was avoided as a major cause of the pandemic. This led to the country's lockdown as well as implementation of quasi-lockdown measures in some provinces at certain times, which had a severe impact on economic activities. The 2020 economic growth rate was unsurprisingly at the negative rate of 6.1%, demonstrating the value of economic distress from the COVID-19 epidemic.

To maintain the domestic consumption level which was adversely affected by the COVID-19 pandemic, the government implemented multiple stimulus measures as documented in the 2021 annual report of Ministry of Finance (Ministry of Finance, 2021). The measures aimed at mitigating the burden of basic living expenses as well as providing additional financial support and had the fiscal multiplier at work. A series of the measures was seen in the form of a cash handout through the '*Pao Tang*' application on mobile phone. The people participated in such program needed to have a smart phone and internet access when spending on the allowed item on the campaign. The household without a smart phone was therefore excluded. Further, the internet access must be available at the point of purchase. Even though the public internet was available in some communities, the network area may have been limited.

In the 2021 Ministry of Finance annual report, the consumption stimulus included the 50:50 co-payment campaign (Half-Half) Phase I and Phase II. Under the campaign, an

individual paid half of food, drink, and general goods while the other half up to 150 baht per person per day was on the government. This campaign was capped at 3,500 baht per person, starting in October 2020 and finished in March 2021. The 50:50 co-payment campaign (Half-Half) Phase III returned in July 2021 and finished in December 2021. The condition for individual spending with the government subsidized remained the same except that the campaign was capped at 4,500 baht per person in Phase III.

Another consumption stimulus was '*Rao Chana*' (We Win) which was effective from January to June 2021. The qualified applicants of the We Win would receive the handout through the use of a state welfare card, 'Pao Tang' application and the National ID card.

3. Research Framework

The research framework in this study is designed to estimate the probability of at least one member in the household *i* participating in the government cash handout program through '*Pao Tang'* mobile application. The unit of analysis is households. In detail, the household *i* in which at least one member participates in either 'Half-Half' or 'We Win' program through 'Pao Tang' mobile application represents the dependent variable. Control variables include socio-economic status of household *i*, number of members in household *i*, characteristics of head of household *i*, urban residence of household *i* and region of residence of household *i*, as indicated in the study of de Milliano et al. (2021), Pace et al. (2022) and Al Izzati et al. (2023). In the underlying cash handout program, accessibility to internet service is required when making a rebate on the payment through '*Pao Tang'* mobile application. Therefore, an independent variable representing the accessibility to internet service of household *i* is included. The research framework is defined by the following equation.

$$y_i = \alpha + \gamma \exp_i + \eta \text{int}_i + \delta z_i + e_i$$

Where

y_i is the probability of at least one member in a household participating in the respective government cash handout program.

$\exp_i$ is socio-economic status of the corresponding household.

int_i is accessibility to internet service of the corresponding household.

z_i is a set of characteristics of the corresponding household, including age group of household head, gender of household head, marital status of household head, education background of household head, type of industry in the employment of household head, household size, urban residence and region of residence.

e_i is the residual term.

4. Data and Methodology

4.1 Data Descriptions

This study employs the nationally representative household survey of expenditure and income in Thailand during 2021. The variable descriptions are presented in Table 1.

Table 1 Variable descriptions

Variable	Description
Dependent variable	
Participation in the government cash handout program through '*Pao Tang'* mobile application	Binary variable with: At least one member in a household receives the cash handout through '*Pao Tang'* mobile application = 1, and 0 otherwise
Independent variable	
Socio-economic status of household	Log of per capita expenditure of a household expressed in quintiles
Household's accessibility to internet service	Binary variable with: Has a payment for internet service = 1, and 0 otherwise
Age group of household head	Categorical variable with: Age group of 20 – 29 = 1, and 0 otherwise Age group of 30 – 39 = 1, and 0 otherwise Age group of 40 – 49 = 1, and 0 otherwise Age group of 50 – 59 = 1, and 0 otherwise Age group of 60 and above = 1, and 0 otherwise
Gender of household head	Binary variable with: Male = 1, and 0 otherwise
Marital status of household head	Categorical variable with: Single = 1, and 0 otherwise Married = 1, and 0 otherwise Divorced/Separated/Widowed = 1, and 0 otherwise
Education background of household head	Categorical variable with: Primary education or lower = 1, and 0 otherwise Lower secondary education = 1, and 0 otherwise Upper secondary (general/vocational) education = 1, and 0 otherwise Post-secondary education = 1, and 0 otherwise Other education = 1, and 0 otherwise
Type of industry of the employment of household head	Categorical variable with: Primary = 1, and 0 otherwise Manufacturing = 1, and 0 otherwise Service = 1, and 0 otherwise

Table 1 Variable descriptions

Variable	Description
	Unemployed = 1, and 0 otherwise
Household size	Log of number of household members
Municipality	Binary variable with: Municipal area of residence = 1, and 0 otherwise
Region of residence	Categorical variable with: Bangkok = 1, and 0 otherwise Central region = 1, and 0 otherwise Northern region = 1, and 0 otherwise Northeastern region = 1, and 0 otherwise Southern region = 1, and 0 otherwise

4.2 Methodology

The dependent variable in the study is binary. Therefore, a probit model is employed to examine the probability of at least one member in a household participating in the government cash handout program through '*Pao Tang'* mobile application.

The latent variable is y_i^* and is expressed by

$$y_i^* = x_i\beta + \varepsilon_i$$

where x_i is the independent variables and β is a vector of unknown parameters. ε_i is independent of x_i, and $\varepsilon_i \sim Normal(0,1)$. We observe a binary value of y_i as below.

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases}$$

The maximum likelihood approach is used for the estimation of β (Wooldridge, 2010).

5. Results

5.1 Summary statistics of the variables.

The sample size of households in the 2021 survey was 46,840. In the data cleaning, 189 samples with missing values and the household heads of age under 20 years were excluded. The final samples used in this study is 46,651 households. Summary statistics of the dependent and independent variables from the respective households are presented in Table 2.

Table 2 Summary statistics of the variables.

Participation in the government cash handout program through '*Pao Tang*' mobile application	Mean = 0.466, s.d. = 0.499 Min = 0, Max = 1
Socio-economic status of household	
Quintile 1	Mean = 0.201, s.d. = 0.400 Min = 0, Max = 1
Quintile 2	Mean = 0.200, s.d. = 0.400 Min = 0, Max = 1
Quintile 3	Mean = 0.200, s.d. = 0.400 Min = 0, Max = 1
Quintile 4	Mean = 0.200, s.d. = 0.400 Min = 0, Max = 1
Quintile 5	Mean = 0.200, s.d. = 0.400 Min = 0, Max = 1
Household's accessibility to internet service	Mean = 0.745, s.d. = 0.436 Min = 0, Max = 1
Age group of household head	
Age group of 20-29 years	Mean = 0.041, s.d. = 0.199 Min = 0, Max = 1
Age group of 30-39 years	Mean = 0.097, s.d. = 0.296 Min = 0, Max = 1
Age group of 40-49 years	Mean = 0.178, s.d. = 0.383 Min = 0, Max = 1
Age group of 50-59 years	Mean = 0.260, s.d. = 0.439 Min = 0, Max = 1
Age group of 60 years and above	Mean = 0.424, s.d. = 0.494 Min = 0, Max = 1
Gender of household head	
Male	Mean = 0.574, s.d. = 0.495 Min = 0, Max = 1
Marital status of household head	
Single	Mean = 0.108, s.d. = 0.310 Min = 0, Max = 1
Married	Mean = 0.615, s.d. = 0.487 Min = 0, Max = 1
Widowed/Separated	Mean = 0.277, s.d. = 0.448 Min = 0, Max = 1
Education background of household head	
Primary or lower	Mean = 0.558, s.d. = 0.497 Min = 0, Max = 1
Lower secondary	Mean = 0.104, s.d. = 0.305 Min = 0, Max = 1
Upper secondary (general/vocational education)	Mean = 0.126, s.d. = 0.332 Min = 0, Max = 1
Post-secondary	Mean = 0.161, s.d. = 0.368

Table 2 Summary statistics of the variables.

	Min = 0, Max = 1
Others	Mean = 0.051, s.d. = 0.220
	Min = 0, Max = 1
Type of industry of the employment of household head	
Primary	Mean = 0.275, s.d. = 0.447
	Min = 0, Max = 1
Manufacturing	Mean = 0.127, s.d. = 0.332
	Min = 0, Max = 1
Service	Mean = 0.309, s.d. = 0.462
	Min = 0, Max = 1
Unemployed	Mean = 0.289, s.d. = 0.453
	Min = 0, Max = 1
Household size	Mean = 0.871, s.d. = 0.572
	Min = 0, Max = 2.996
Municipality	
Non-Municipal area of residence	Mean = 0.434, s.d. = 0.496
	Min = 0, Max = 1
Region of residence	
Bangkok	Mean = 0.056, s.d. = 0.229
	Min = 0, Max = 1
Central region	Mean = 0.292, s.d. = 0.455
	Min = 0, Max = 1
Northern region	Mean = 0.231, s.d. = 0.421
	Min = 0, Max = 1
Northeastern region	Mean = 0.265, s.d. = 0.441
	Min = 0, Max = 1
Southern region	Mean = 0.157, s.d. = 0.363
	Min = 0, Max = 1

Source: Author's calculation

5.2 The Results of Probit Model

The probit model is employed to examine the probability of a household in which at least one household member participated in the government cash handout program through '*Pao Tang*' mobile application. The samples in the analysis include 46,651households from the SES survey in 2021. The estimates of coefficients and marginal effects with standard errors are presented in Table 3.

Table 3 The probability of at least one household member participating in the government cash handout through '*Pao Tang*' mobile application using a Probit model.

Independent variable	Model 1				Model 2			
	Coeff.		Marginal effect		Coeff.		Marginal effect	
Socio-economic status of household (Ref. = the 3rd quintile)								
1st Quintile	-0.390	***	-0.136	***	-0.386	***	-0.135	***
	(0.021)		(0.007)		(0.021)		(0.007)	
2nd Quintile	-0.129	***	-0.046	***	-0.130	***	-0.047	***
	(0.020)		(0.007)		(0.019)		(0.007)	
4th Quintile	0.153	***	0.055	***	0.156	***	0.056	***
	(0.020)		(0.007)		(0.020)		(0.007)	
5th Quintile	0.268	***	0.097	***	0.269	***	0.097	***
	(0.022)		(0.008)		(0.022)		(0.008)	
Household's accessibility to internet service (Ref. = No accessibility to internet service)								
	0.347	***	0.123	***				
	(0.016)		(0.006)					
Age group of household head (Ref. = Age group of 20-29)								
Age group of 30-39	0.020		0.007					
	(0.036)		(0.013)					
Age group of 40-49	-0.053		-0.019					
	(0.034)		(0.012)					
Age group of 50-59	-0.097	***	-0.035	***				
	(0.034)		(0.012)					
Age group of 60 and above	-0.218	***	-0.078	***				
	(0.035)		(0.013)					
Interaction term = Accessibility to internet service ***** Different age groups of household head (Ref. = No accessibility to internet service)								
Internet service *Age group of 20-29					0.408	***	0.148	***
					(0.036)		(0.013)	
Internet service * Age group of 30-39					0.436	***	0.158	***
					(0.027)		(0.010)	
Internet service * Age group of 40-49					0.397	***	0.143	***
					(0.022)		(0.008)	
Internet service * Age group of 50-59					0.376	***	0.136	***
					(0.020)		(0.007)	
Internet service * Age group of 60 and above					0.327	***	0.118	***
					(0.019)		(0.007)	
Gender of household head (Ref. = Female)								
Male	-0.076	***	-0.027	***	-0.085	***	-0.030	***

Table 3 The probability of at least one household member participating in the government cash handout through '*Pao Tang*' mobile application using a Probit model.

Independent variable	Model 1				Model 2			
	Coeff.		Marginal effect		Coeff.		Marginal effect	
	(0.014)		(0.005)		(0.014)		(0.005)	
Marital status of household head (Ref. = Single)								
Married	-0.173	***	-0.061	***	-0.197	***	-0.070	***
	(0.024)		(0.008)		(0.023)		(0.008)	
Widowed/Separated	-0.102	***	-0.036	***	-0.140	***	-0.050	***
	(0.025)		(0.009)		(0.025)		(0.009)	
Education background of household head (Ref. = Primary education or lower)								
Lower secondary education	0.109	***	0.039	***	0.141	***	0.051	***
	(0.022)		(0.008)		(0.021)		(0.008)	
Upper secondary education (general/vocational)	0.092	***	0.033	***	0.124	***	0.045	***
	(0.021)		(0.007)		(0.020)		(0.007)	
Post-secondary education	0.037	*	0.013	*	0.062	***	0.022	***
	(0.021)		(0.008)		(0.021)		(0.008)	
Others	-0.441	***	-0.151	***	-0.430	***	-0.148	***
	(0.031)		(0.010)		(0.031)		(0.010)	
Industry type of the employment of household head (Ref. = Industrial sector)								
Primary sector	-0.079	***	-0.028	***	-0.106	***	-0.038	***
	(0.022)		(0.008)		(0.022)		(0.008)	
Service sector	-0.045	**	-0.016	**	-0.058	***	-0.021	***
	(0.021)		(0.007)		(0.021)		(0.007)	
Unemployed	-0.127	***	-0.045	***	-0.195	***	-0.070	***
	(0.024)		(0.008)		(0.023)		(0.008)	
Household size								
	0.550	***	0.195	***	0.550	***	0.195	***
	(0.015)		(0.005)		(0.015)		(0.005)	
Area of residence (Ref. = Municipal area)								
Non-Municipal area	-0.012		-0.004		-0.008		-0.003	
	(0.013)		(0.005)		(0.013)		(0.005)	
Region of residence (Ref. = Central region)								
Bangkok	0.171	***	0.062	***	0.175	***	0.063	***
	(0.029)		(0.010)		(0.029)		(0.010)	
Northern region	-0.135	***	-0.049	***	-0.143	***	-0.052	***
	(0.018)		(0.006)		(0.017)		(0.006)	

Table 3 The probability of at least one household member participating in the government cash handout through '*Pao Tang*' mobile application using a Probit model.

Independent variable	Model 1				Model 2			
	Coeff.		Marginal effect		Coeff.		Marginal effect	
Northeastern region	-0.362	***	-0.129	***	-0.364	***	-0.130	***
	(0.017)		(0.006)		(0.017)		(0.006)	
Southern region	0.055	***	0.020	***	0.060	***	0.022	***
	(0.019)		(0.007)		(0.019)		(0.007)	
Intercept	-0.339	***			-0.433	***		
	(0.041)				(0.034)			
Number of households	46,651				46,651			
Pseudo R2	0.103				0.102			

Note: 1. *** statistically significant at 1% level, ** statistically significant at 5% level, * statistically significant at 10% level.

2. First line is coefficient and marginal effect; second line is standard error.

Source: Author's estimations

Table 3 illustrates the estimates of coefficients and marginal effects using a probit regression for Model 1 and Model 2. Model 1 examines the probability of a household's participation in the cash handout program with respect to the independent variable and the control variables as explained in Section 3. To test whether the nexus between age and mobile technology adoption is evident in this study, the interaction terms is included in Model 2. The interaction terms represent the household's accessibility to internet service interacting with different age groups of household head. Households' accessibility to internet service and age groups of household head are dropped out. By having the interaction terms, it provides an insight of whether different age groups of household heads would be indifferent in participating in the cash handout program through '*Pao Tang*' mobile application, given that accessibility to internet service is provided.[2]

In Table 3, the findings of Model 1 are consistent with that of Model 2, with slightly different in the values of coefficient and marginal effect. Therefore, the interpretation of regression results and the discussions will be based on Model 1. When focusing on the nexus between age and mobile technology adoption (the accessibility of internet services * the different age groups of household heads), an interpretation will be drawn from Model 2.

Model 1 in Table 3 illustrates the probability of households in which at least one household member participates in the government cash handout through '*Pao Tang*' mobile application. The independent variables include household's economic status, household's accessibility to internet service, age groups of the household head, demographic

[2] The author also has the regression result of the model in which accessibility to internet service, age group of household head and the interaction term are included as independent variables. The result showed that the negative marginal effect of older age group of household head outweighed the positive marginal effect of the interaction term between older age group of household head and accessibility to internet service. This affirms the lower probability of older age of household head in participating in the government cash handout program.

characteristics of the household head (such as gender, marital status, educational background, and industry type of employment), household size, area of residence, and region of residence. The main findings are as follows.

The economic status of households, as indicated by per capita household expenditure, plays a significant role in determining the likelihood of participating in the government cash handout program. Given the third quintile of household expenditure as the reference group, it is evident that households with lower economic status (the bottom two quintiles of per capita household expenditure) were less likely to participate in the government program by 13.6% and 4.6%, respectively. Conversely, households with higher economic status (the top two quintiles of per capita household expenditure) showed an increased probability of participating in the government cash handout program by 5.5% and 9.7%, respectively. This could be caused by barriers such as a lack of access to the application process and the perception that the process is too cumbersome.

Given that accessibility to internet service is provided, the use of '*Pao Tang*' mobile application can be made at the point of purchase. The coefficient of the probit model confirms a significant role of accessibility to internet service in the likelihood of participating in the government cash handout program. The marginal effect indicates that the likelihood of a household with accessibility to internet service participating in the cash handout program was 12.3% higher than those without accessibility to internet service.

Familiarity with technology and technology adoption may decrease as people age. Given the current situation of aging population, the age of the household head was categorized into five groups. The results show that household heads in their 50s and in their 60s and above were less likely to participate in the government program by 3.5% and 7.8%, respectively, compared to the younger counterparts.

Additionally, given that accessibility to internet service is provided, it is worthwhile to investigate whether the likelihood of participation in the government cash handout program declines as age of household head increases. We use the regression result in Model 2 for interpreting the marginal effects of interaction terms. The results of the marginal effect showed that the likelihood of participation in the government cash handout program statistically decreased with age. Specifically, household heads whose age was 60 years and above had a lower probability of taking part in the government program significantly. This indicates that unfamiliarity with digital technology, such as the use of smartphone applications, could pose a crucial challenge to older persons and prevent them from participating in such activities. If this challenge is ignored, older persons may be left behind in gaining the benefits of the government program.

In Model 1, it is evident that female heads of household were more likely to participate in the government cash handout program than the male counterparts. This can be due to the fact that women are more likely to be the primary household shoppers. By participating in the government cash handout program, they can save on household expenses. Regarding the educational background of household heads, it was found that those with education levels higher than primary school had a higher probability of participating in the government program. With regard to the region of residence, the results reveal that the households located in the North and the Northeast regions were less likely to participate in the government program.

6. Conclusion and Policy Recommendation

This study seeks to identify the factors explaining at least one member in a household participated in the government cash handout program, of which the cash transfer was made through *'Pao Tang'* application on smartphones. Using the 2021 nationally representative household survey of expenditure and income in Thailand, the results of a Probit model reveal that economically disadvantaged households were less likely to participate in the government cash handout program compared to better-off households. Households with accessibility to internet service were more likely to participate in the program, as the internet connection was required when making a rebate on the payment through '*Pao Tang*' application on smartphones. Additionally, the nexus between age and mobile technology adoption is also evident in this study, underscoring the prominent role of age, particularly in the older age group of household heads. In detail, the results show that older heads of household were less likely to participate in the government program than younger ones. Even within the group of households that had accessibility to internet service, the findings remain unchanged: older heads of household had a lower probability of participating in the government cash handout than the younger ones. This could be attributed to the unfamiliarity and unpreparedness of mobile technology adoption among older heads of household. The findings suggest that inclusive practices for population with diverse digital skills, besides a multiplier effect on consumption and subsequent income levels, in a cash transfer program should be taken into consideration in a policy design. Particularly for a digital technology-related program, familiarity with and preparedness for mobile technology adoption, along with accessibility to the internet, should be taken into account in order to overcome participation barriers.

Declaration of conflicting interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

This research project is supported by grants for development of new faculty staff, Ratchadaphiseksomphot Fund, Chulalongkorn University [Grant number: DNS 65_006_51_001_1].

Acknowledgments

The author would like to thank the National Statistical Office (NSO) of Thailand for the permission and the provision of the 2021 Socio-Economic Survey (SES) data. The author would also like to thank three anonymous referees for their helpful comments. All remaining errors are the author' s.

Ethical approval

The study was exempt from ethical review in compliance with the Office for Human Research Protections (OHRP Exempt Categories) 45 CFR part 46.101(b). Certificate of Approval is COA No. 215/67.

Author contributions

Nopphawan Photphisutthiphong: Conceptualization, writing – original draft, review & editing, methodology, data cleaning, performed statistical analyses and interpretation of results.

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