Factors Influencing Knowledge and Understanding of Personal Income Tax through the E-Filing System of Employees in Industrial, NikhomPhatthana District, Rayong Province

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Abstract: - The purposes of this study were 1) to examine the factors influencing employees' knowledge and understanding of personal income tax through the e-Filing system in the industrial sector of Nikom Phatthana District, Rayong Province; and 2) to compare the level of knowledge and understanding of personal income tax and the e-Filing system among these employees. The sample consisted of 222 employees randomly selected from the industrial sector in Nikom Phatthana District. Questionnaires were used as the research instrument. Data analysis involved determining frequencies, percentages, means, standard deviations, t-tests, and ANOVA. The key findings were: 1) The majority of the sample were male, aged below 25 years, held bachelor's degrees, and earned less than 20,000 baht; 2) Overall, knowledge and understanding levels were moderate. Perceptions of the e-filing system's ease of use were higher compared to knowledge about taxation and deductions; 3) There were no significant differences in tax knowledge across demographic groups at the 0.05 level. However, there were differences in cost deductions, with statistical significance at the 0.05 level. Married respondents with annual incomes exceeding 220,000 baht (average 18,333 baht per month) displayed more tax knowledge than other groups, and 4) Respondents aged below 25 demonstrated greater e-Filing knowledge than those aged over 45 years. The researchers recommend that government agencies enhance public relations and education efforts to improve online tax filing understanding and adoption.

Key-Words: - personal income tax, employees, e-filing system, NikhomPhatthana District.

1 Introduction

Personal income tax is collected by the government from individuals who meet specified criteria to fund national development across various sectors. The Revenue Department is the agency responsible for collecting taxes from citizens and delivering them as revenue to the state. Individuals are required to submit their income tax forms and make payments from January 1st to March 31st of the following year. There are two methods for income tax submission: 1) In-person delivery at the Revenue Department; and 2) Delivery by mail. However, these options can cause work delays for employees. As such, the Revenue Department implemented an electronic tax filing (e-filing) system to allow online submissions. Preparing the required documentation prior is necessary before filling out e-filing information to ensure completeness, [1].

Rayong Province has long been vital to both the Thai economy and industry, serving as a major source of employees for industrial plants. In the first quarter of 2022 alone, 488 new corporate registrations were filed along with 29 new factory registrations producing 842,980.81 baht per capita annually there, [2]. However, many employees still lack sufficient knowledge about taxation, especially personal income tax payments, compared to national historical collection rates.

Although the Revenue Department facilitates individual e-filing for added convenience and speed, some still submit manually using paper forms, whether due to unfamiliarity with the online process, lack of confidence in security, or general resistance to change. Consequently, the Department experiences decreased and sub-par tax revenue collection.

Therefore, to benefit relevant authorities, this study aims to explore factors influencing manufacturing employees' awareness, knowledge, and understanding of personal income tax e-filing in the industrial sector of Nikom Phatthana District, Rayong Province. Findings will help guide public relations and education initiatives to provide accurate information on online submission methods, tax deductions, potential benefits, and more to taxpayers.

1.1 Research Objectives

1) To examine factors influencing knowledge and understanding of personal income tax e-filing among industrial employees in NikhomPhatthana District, Rayong Province.
2) To compare levels of knowledge and understanding of personal income tax e-filing among industrial employees in NikomPhatthana District, Rayong Province across gender and age groups.

2 Literature Review

Perception is the primary form of human cognitive contact with the surrounding world, forming the basis of all conceptual knowledge and understanding derived from science and philosophy. Key characteristics include being: 1) knowledge-based; 2) inferential; 3) categorical; 4) relational; 5) adaptive; and 6) an automatic process, [3], [4].

Cognitive theory focuses on analyzing cognitive responses to persuasive stimuli, seeking to understand how resulting thoughts and processes determine attitudinal changes and their extent. It examines what people think when faced with persuasive messaging, [5]. Bloom's Taxonomy by Benjamin Bloom delineates cognitive understanding across six levels, from basic remembering of details to the highest order evaluation. These stages are: 1) knowledge; 2) comprehension; 3) application; 4) analysis; 5) synthesis; and 6) evaluation, [6].

Taxpayer awareness stems from within, such that one must first recognize tax importance for state revenue and welfare to comply with obligations. This aligns with the Theory of Planned Behavior whereby intentions drive actions. If taxpayers understand taxes' role and value, it motivates voluntary carrying out of duties, [7].

Personal income tax is collected from eligible units annually on prior year income per legal specifications, reported each January-March. Some cases warrant half-year installments to alleviate annual tax burdens. Withholding from certain incomes also facilitates gradual payment, [8].

Knowledge and understanding of e-filing provide incentives like saving time and costs that encourage public adoption. Benefits also include paying anytime and quick refunds from online submission. However, past research found uncertainties around internet information receipt, system stability, and privacy fears as hindrances, [9], [10]. There remains a need to educate on built-in validation checks, supplementary tools, evidence timeline extensions, and more to alleviate misconceptions. As such, exploring current awareness and education gaps can provide value.

2.1 Deduction of Expenses and Deduction of Personal Income Tax

The Revenue Department of the Ministry of Finance administers personal income tax, which varies by income source and residence at progressive rates from 5-35 percent, [11]. Taxpayers must file returns and remit payments by March 31st of the year following the taxable period.

Regulations specify assessable income considerations, deductions, and allowances as shown in Table 1 and Table 2.

Certain deductions and allowances are permitted in calculating taxable income, as summarized in Table 1 and Table 2. Taxpayers make these deductions against assessable income before allowances are granted. Thus, the taxable income formula is:

TAXABLE INCOME = Assessable Income – deductions – allowances

Based on the literature review and relevant personal income tax collection principles, this study identified four-factor categories influencing knowledge and understanding of e-filing:

1. Knowledge and understanding of taxation
2. Expense deductions
3. Tax deductions
4. Perceived ease of use of the e-filing system

These formed the conceptual framework guiding the research, depicted in Figure 1.

Table 1. The rate of deducting expenses of assessable income 40(1) – 40(8), [9].

Evaluable income	Deduction of expenses
Section40 (1) and (2)	Can deduct 50 percent of the expenses, but together must not exceed 100,000 baht
Section40 (3)	The income of Good Ville, the value of copyright, or other rights. Choose to deduct expenses in any way as follows Method 1 deducts the actual cost as needed and appropriate. Method 2 deducts 50 percent but not more than 100,000 baht.
Section40 (4)	Not to deduct expenses
Section40 (5)	Property rentals choose to deduct expenses in any way as follows: Method 1 deducts the actual expenses as needed and appropriate. Method 2 deduction of expenses is the following rates as follows: (A) other buildings or rafts 30 (B) 20 % of the land used in agriculture (C) Land that is not used in agriculture 15 percent (D) 30 percent vehicle (E) 10 percent of other assets
Section40 (6)	Choose to deduct expenses in any way as follows: Method 1 deducts the actual expenses as needed and appropriate. Method 2 deduction of expenses at a rate as follows: (1) 60 percent of artistic healing (2) Other independent professions, except for the assembly of 30 percent of art
Section40 (7)	Choose to deduct expenses in any way as follows: Method 1 deducts the actual cost as needed and appropriate. Method 2 deduction of expenses is 60 percent.
Section40 (8)	Choose to deduct expenses in any way as follows: Method 1 deducts the actual expenses as needed and appropriate.

Table 2. Persona income tax deduction, [9].

| Allowance list	Allowance
Personal and Family	
Income earner (Ordinary partnership or non-juristic body of persons, maximum 120,000 baht)	60,000 baht
Spouse (no income or income included in tax calculation)	60,000 baht
Child Children from the 2nd onwards born on or after 2018	30,000 baht per person Additional 30,000 baht per person
Parental support	30,000 baht per person
Donation	
General donations such as temples, the Thai Red Cross Society, charitable institutions, hospitals, and government educational institutions.	As paid but not more than 10% of income after deducting expenses and allowances
Donations to support education to designated educational institutions (Royal Ordinance 681/2562)	The e-donation channel can deduct 2 times, not more than 10% of the income after deducting expenses and allowances.
Life insurance and investment	
Parents' health insurance premiums*	15,000 baht
Life insurance premium*	100,000 baht
Health insurance premiums*	15,000 baht
*Not more than 100,000 baht of income earners	
Provident fund contributions	As paid but not more than 500,000 baht
National Savings Fund contributions	As paid but not more than 500,000 baht
Contributions to the Social Security Fund	As paid (according to the Social Security Act)
Interest on loans for purchase, hire-purchase, or construction of residential buildings	As paid but not more than 100,000 baht
Purchase of investment units in Retirement Mutual Fund (RMF)	Not more than 15% of the assessable income received which is subject to tax but not more than 500,000 baht

2.2 Conceptual Framework
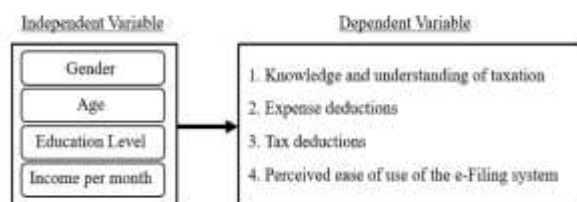
Fig. 1: Conceptual Framework

2.3 Hypothesis

Hypothesis 1: There is a significant difference in awareness of personal income tax e-filing between males and females.

H0: There is no significant difference in awareness of personal income tax e-filing between males and females.

H1: There is a significant difference in awareness of personal income tax e-filing between males and females.

Hypothesis 2: There is a significant difference in perceptions and understanding of personal income tax e-filing across age groups.

H0: There is no significant difference in perceptions and understanding of personal income tax e-filing across age groups.
H2: There is a significant difference in perceptions and understanding of personal income tax e-filing across age groups.

3 Research Methodology
The research was conducted across 391 factories in NikhomPhatthana District, Rayong Province, [12]. Using purposive then random sampling, the sample consisted of 222 production department employees, [13].

The research tool was a 3-part questionnaire: Part 1 collected respondent demographics; Part 2 assessed factors influencing knowledge and understanding of personal income tax e-filing on a rating scale; and Part 3 gathered additional suggestions.

Questionnaire creation and validation involved the Index of Item-Objective Congruence (IOC). IOC scores between 0.67-1.00 indicate item-objective congruence. Reliability analysis through Cronbach's Alpha Coefficient produced an overall IOC of 0.983. Each item received Corrected Item-Total Correlations from 0.73 to 0.93.

Data collection involved distributing questionnaires across factories in NikhomPhatthana District with 222 completed responses.

4 Results

4.1 The Results of the Analysis of the Personal Status of the Respondents as Shown in Table 3

Table 3. Frequency and Percentage Distributions of Demographic Characteristics Among Industrial Employees in NikhomPhatthana District, Rayong Province

Items.		Frequency	Percent
gender	Male	119	53.60
	Female	103	46.40
Age	Less than 25 years old	117	52.70
	25 - 45 years old	98	44.10
	More than 45 years old	7	3.20
Education Level	Undergraduate	90	40.50
	bachelor's degree	119	53.60
	Postgraduate	13	5.90
Income per month	Less than 20,000 Bath	128	57.70
	20,001 - 35,000 Bath	69	31.10
	35,001 - 50,000 Bath	16	7.20
	More than 50,000 Bath	9	4.10

Table 3 displays sample demographic characteristics. The majority of respondents were male (53.60%). Over half were under 25 years old (52.70%), held a bachelor's degree (53.60%), and earned less than 20,000 baht monthly (57.70%).

4.2 The Results of the Analysis of Mean and Standard Deviation, Factors Influencing Knowledge and Understanding of Personal Income Tax through the E-Filing System of Employees in Industrial, NikhomPhatthana District, Rayong Province. As Shown in Table 4

Table 4. Means and Standard Deviations of Factors Influencing Personal Income Tax e-Filing Knowledge and Understanding Among Industrial Employees in NikhomPhatthana District, Rayong Province

Factors influencing knowledge and understanding of personal income tax through E-Filing system of employees in industrial, NikhomPhatthana District, Rayong Province.	$\bar{x}$	S.D.	Interpretation
Overall	3.44	0.95	medium
Knowledge and understanding of taxation	3.33	1.05	medium
Expense deduction	3.32	0.95	medium
Tax deduction	3.40	1.07	medium
Perceived ease of use of the e-filing system	3.67	1.01	high

Table 4 shows the level of opinion regarding factors influencing knowledge and understanding of personal income tax e-filing among industrial employees in NikhomPhatthana District. Overall, the mean opinion level was moderate ($\overline{x}$ = 3.44). Looking at individual factors:

- Perceived ease of use of the e-filing system: High mean ($\overline{x}$ = 3.67),
- Tax deductions: Moderate mean ($\overline{x}$ = 3.40)
- Knowledge and understanding of taxation: Moderate mean ($\overline{x}$ = 3.33)
- Expense deductions: Moderate mean ($\overline{x}$ = 3.32)

4.3 The Results of Objective Data Analysis to Compare the Differences in the Level of Knowledge and Understanding of Personal Income Tax through the E-Filing System of Employees in Industrial, NikhomPhatthana District, Rayong Province. Classified by Gender Status as Shown in Table 5

Table 5. Comparison of Personal Income Tax e-Filing Knowledge and Understanding Levels Among Industrial Employees in NikhomPhatthana District by Gender

Factors influencing knowledge and understanding of personal income tax through the E-Filing system of employees in industrial, NikhomPhatthana District, Rayong Province.	t-Value	P-Value
Overall	0.61	0.55
Knowledge and understanding of taxation	0.50	0.62
Expense deduction	0.20	0.84
Tax deduction	0.57	0.57
Perceived ease of use of the e-filing system	0.88	0.38

Table 5 presents the results of statistical analysis comparing levels of knowledge and understanding of personal income tax e-filing among industrial employees in NikhomPhatthana District. Overall, there were no statistically significant differences detected at the 0.05 level.

4.4 The Results of the Statistical Analysis used to Compare the Difference in the Knowledge and Understanding of Personal Income Tax through the E-Filing System of Employees in Industrial, NikhomPhatthana District, Rayong Province. Classified by Age Status as Shown in Table 6

Table 6. Statistical Analysis Comparing Personal Income Tax e-Filing Knowledge and Understanding Among Industrial Employees in NikhomPhatthana District by Age Groups

Factors influencing knowledge and understanding of personal income tax through E-Filing system of employees in industrial, NikhomPhatthana District, Rayong Province.	F-Value	P-Value
Overall	1.10	0.34
Knowledge and understanding of taxation	1.05	0.35
Expense deduction	2.99	0.05*
Tax deduction	0.55	0.58
Perceived ease of use of the e-filing system	0.87	0.42

Table 6 displays the results of statistical analysis comparing knowledge and understanding levels of personal income tax e-filing among industrial employees in NikhomPhatthana District across age groups. Overall, there were no statistically significant differences at the 0.05 level. However, significance at the 0.05 level emerged for one factor – expense deductions.

4.5 The Results of the Statistical Analysis Used to Compare the Difference in the Knowledge and Understanding of Personal Income Tax through the E-Filing System of Employees in industrial, NikhomPhatthana District, Rayong Province. Classified by Age Status, Deduction of Expenses on a Double Basis. As shown in Table 7

Table 7. Statistical Analysis Comparing Expense Deduction Knowledge and Understanding in Personal Income Tax e-Filing Among Industrial Employees in NikhomPhatthana District by Age Groups

Age	$\bar{x}$	Less than 25 years old	25 - 45 years old	More than 45 years old
		3.46	3.15	3.43
Less than 25 years old	3.46	-	0.31	0.03*
25 – 45 years old	3.15		-	0.28
More than 45 years old	3.43			-

Table 7 further analyzes the significant difference found in Table 6 for the expense deduction factor across age groups. Post hoc testing using Scheffe's method revealed one paired comparison exhibiting statistical significance at the 0.05 level: Employees under 25 showed greater knowledge of expense deductions than those over 45 years old. In summary, the key difference in e-filing understanding based on age emerged for expense deduction comprehension between those under 25 years old compared to over 45.

5 Discussion

Key findings aligned with research objectives are summarized as follows:

Sample demographics showed most respondents were male, under 25 years old, held bachelor's degrees, and earned below 20,000 baht monthly. This aligns with studies, [8], [14]. finding similar respondent profiles.

The overall mean opinion level regarding factors influencing e-filing knowledge and understanding was moderate at 3.44. Individually, perceived ease of use scored highest (3.67), supported by research, [15], [16], citing e-filing conveniences like anytime submission. However, connectivity and awareness issues persist.

Hypothesis 1 found no significant differences in e-filing perceptions by gender per statistical analysis at the 0.05 level. This concurs with, [17]. where personal factors including gender showed no major effects on tax payment attitudes and comprehension.

Hypothesis 2 revealed a significant difference in e-filing perceptions and understanding between age groups at the 0.05 level. Particularly, those under 25 exhibited greater engagement, largely for the double deduction incentive, versus taxpayers aged 45 years and above. Research, [18], also found age significantly impacts e-Filing proficiency, aligning with a 0.05 significance level.

6 Conclusion

The key conclusions are:

Ease of use perceptions strongly influences e-filing knowledge and understanding, as industrial employees already utilize the internet daily with confidence in online conveniences and speed versus in-person filing.

Hypothesis 1 found no significant differences in e-filing awareness by gender, indicating income tax obligations apply equally to required filers regardless of potential additional taxes owed.

Hypothesis 2 revealed significant differences in expense deduction perceptions between age groups. Employees under 25 displayed a greater understanding of deductions, likely from proactive research into tax calculation components like deductible work expenses that provide permitted reductions to reach taxable income.

In summary, e-filing knowledge and engagement depend extensively on recognizing digital fluency and tax literacy specific to one's situation. Targeted awareness initiatives focusing on ease of use, individual obligations, and potential deduction benefits may improve understanding and broader adoption.

7 Suggestions

1) Employees should pay attention to e-filing for personal income tax, as the Internet offers great convenience and efficiency. The online system facilitates straightforward filing and verification.
2) Organizations should promote e-filing and educate employees to improve adoption.
3) As this study relied solely on questionnaires, analyzing the accuracy of interpretations and results is limited. Future research could utilize interviews alongside surveys for more comprehensive and truthful data.
4) The small sample from one district limits the generalizability of findings. Broadening the scope to a provincial or regional level while expanding beyond just production staff (e.g. government agencies) and increasing sample sizes could provide more detailed insights.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

- Nattapol Phumsiri carried out the conceptualization, methodology, project administration, resources, visualization, writing, and editing. methodology, investigation, and review.
- Chamnan Ngerndee has implemented the methodology, supervision, and review.

All authors discussed the results and contributed to the manuscript.

Conflict of Interest
The authors have no conflict of interest to declare.