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Foreword

The authors in this issue bring our attention to a variety of current topics such as: Climate Change and Food Security, Green Finance, Emotional Labor and Consumer Behavior issues related to Acceptance and Usage, Key Opinion Consumers, and Consumer Nationalism.

Jean-Marc M. Dautrey applies a qualitative method of "discovery research" to study climate change-induced shocks as a mounting threat to ASEAN's food and nutrition security. He calls for a transition to more sustainable, resilient, and efficient agricultural systems such as the development of organic and biodynamic techniques.

Patraranant Chinavicharana and Veerisa Chotiyaputta assess the correlation between the green loan ratio and the financial performance of three major banks in Thailand from 2018 to 2022, with a random effects model.

Xiaobo Xu explores the relationship between emotional labor and task performance, mediated by emotional regulation self-efficacy, with an online survey of 403 bank tellers in Handan City, China.

Worachart Bangyong and Jul Thanasrivanitchai adopt a modified Unified Theory of Acceptance and Use of Technology model (UTAUT2) to identify factors influencing the acceptance and usage of food delivery applications of 425 consumers in Bangkok through an online platform. The model incorporates performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit as independent variables.

Qianjiang Zhu and Akaraphun Ratasuk surveyed 599 users of Xiaohongshu, a Social Commerce Platform in China, with stratified random sampling in Shanghai. They find the pivotal role of Key Opinion Consumers (KOC) in influencing purchase intention, together with the impacts of perceived risk and customer trust.

Anupong Thuengnaitham and Kanin Pessakul study the relationship between consumer nationalism and consumer behavior moderated by brand equity, brand awareness, and perceived quality, in the context of parcel delivery service providers in Thailand, with an online survey of 400 users.

Prof. Dr. Tang Zhimin Editor-in-Chief

CONTENTS

1
19
30
41
55
75

Climate Change-Induced Shocks to Production: A Mounting Threat to ASEAN's Food and Nutrition Security

Jean-Marc M. Dautrey*

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Abstract

This academic paper seeks to assess ASEAN's sustained capacity to achieve food and nutrition security against a backdrop of climate change-induced more intensive, more frequent, and more extreme weather events and increasing food losses by farmers. At issue is whether the risk of natural disasters can be mitigated and whether ASEAN's agriculture and food systems can sustainably achieve the required production increases and lower the region's dependence on the productivity paradigm even as the negative impacts of climate change intensify and pressures on land and water resources mount. Discovery research was conducted. Data for this qualitative inquiry includes direct observation and secondary research data generated as part of organizational record-keeping by governmental and international organizations, agencies, and research institutes. The findings indicate that extreme weather events not only reduce agricultural outputs, but also have deleterious consequences on nutrition security. While the region is betting on biotechnology to reduce the vulnerabilities of its food production systems and on production intensification to increase its output, it needs to transition to more sustainable, resilient, and efficient agricultural systems. The onus should be on the development of organic and biodynamic techniques that minimize or eliminate the risk of chemical food adulteration and preserve the environment while increasing productivity. Measures strengthening national food control regulatory frameworks and enhancing food safety management along food chains should also be adopted.

Keywords: Food Security, Nutrition Security, Production Loss, Climate Change

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Introduction

Southeast Asia is prone to natural disasters (National Geographic Society, 2023; World Bank, 2022). Some of the world's worst catastrophes have occurred in the region (ADB, 2021; Whelley et al., 2015). The toll can be high (Torti, 2012; Reliefweb, 2011). A case in point is the flood that wreaked havoc in Thailand in 2011-12. It claimed an estimated 815 lives and submerged vast economic zones across the country; 65 of Thailand's 76 provinces were declared flood disaster zones and 13.6 million people were affected (Chongvilaivan, 2012). With over 20,000 square kilometers of farmland damaged, 25 percent of the expected rice crop did not survive the flood (Bangprapa, 2022).

Southeast Asia not only has to deal with too much water but also with too little as record floods alternate with record prolonged droughts —a pattern of extremes likely to grow worse as temperatures keep rising due to global warming (Wipatayotin, 2023; International Monetary Fund [IMF], 2022; Acevedo & Novta, 2017). Floods and storms tend to affect crops the most, droughts overwhelmingly impact livestock, and tsunamis, hurricanes, and cyclones cause the most damage in the fishery subsectors (Focus Global Reporter, 2021). Worldwide, the agriculture sector, which includes crops, livestock, fisheries, and forestry, absorbs an estimated 220% of the economic impact caused by medium and large-scale natural disasters in developing countries (Food and Agriculture Organization of the United Nations [FAO], 2015). Given agriculture's inherent high dependence on climate, extreme weather events can present a real threat to a country's food and nutrition security.

As defined by the FAO's Committee on World Food Security (CFS), food security and nutrition are achieved when "all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." (FAO, 2022.). "The four pillars of food security are availability, access, utilization, and stability" (FAO, 2022.).

Nature has always disrupted agriculture. This is nothing new. It has been subjected to the caprices of Mother Nature from time immemorial. One thing has changed though. Global warming is fueling more frequent, more extreme, and more devastating weather events. As we just saw, Southeast Asia is no exception. Climate change-induced shocks to food production can be a major constraint on the ten members of the Association of South-East Asian Nations (ASEAN) access to sufficient, safe, affordable, and nutritious food. The big question is whether ASEAN can sustainably feed its growing population or, to put it another way, whether the region's agriculture and food systems can achieve the required production increases even as the negative impacts of climate change intensify and pressures on land and water resources mount. This paper seeks to address this question. Toward this end, the following broad research questions were developed:

- 1. Can ASEAN sustainably provide sufficient, nutritious, safe, and affordable food to its growing population?
 - 2. Can the risk of natural disasters be mitigated?
- 3. Can the region decrease its dependence on the productivity paradigm and production intensification?

The paper offers a novel approach to the issue of food and nutrition security in the region.

Conceptual Background

Food and Nutrition Security

The complexity of food and nutrition security has been increasingly acknowledged by taking a systemic perspective on causes and solutions (Beddington et al., 2012; Garnett, 2014; Sundram, 2023). As stated in the Regional Report on Nutrition Security in ASEAN, co-produced by ASEAN and the UN International Children's Emergency Fund (UNICEF):

"Food and nutrition security exists when all people at all times have physical, social and economic access to food, which is consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services, and optimal feeding and care practices, allowing for a healthy and active life" (ASEAN, 2016, p. ix).

Both this definition and the FAO's acknowledge that "the nutritional dimension is integral to the concept of food security" (FAO, 2022, p. 6) and recognize "the importance of key nutrition concerns such as care and feeding practices, public health and sanitation issues" (CFS, 2012, p. 6). Until then, food security was mainly discussed from the angle of agriculture, and malnutrition, was predominantly considered as a health problem (El Bilali et al., 2018). Both definitions also enshrine the right to adequate food as universal (United Nations [UN], 1999). Giving the body all the nutrients it needs is deemed to be essential for all people.

The terms 'food security' and 'nutrition security' can be found in two combinations in relevant instruments: Food and nutrition security or food security and nutrition (El Bilali et al., 2018). The 'food and nutrition security' combination underlines the need for greater integration of nutrition and food security in programs and policies and regards appropriate levels of nutrients and protein as the ultimate goals of food security (Committee on World Food Security [CFS], 2012). This approach has become mainstream in academia and some international organizations (e.g. FAO and UNICEF). As to the 'food security and nutrition' combination, it underscores the importance of nutrition for achieving food security but maintains the traditional focus on food availability, access, and stability. This perspective emphasizes food security as a precondition to adequate nutrition (CFS, 2012). Since this paper refers to organizations and academic productions that use either one of these combinations, it will use both of them interchangeably.

The changes in the conceptualization of food security reflect growing public concerns about the dramatic increase in the prevalence of obesity in the last decades (Mason et al., 2017; World Health Organization [WHO], 2017). Worldwide obesity has almost tripled since 1975 and there has been a surge in diet-related Noncommunicable Diseases (NCDs) such as diabetes and hypertension (WHO, 2017, 2021). NCDs now surpass Communicable Diseases (CDs) as the main challenges to nutrition security. The UN World Health Organization (WHO) predicts that by 2030, half of the world's population will be obese and overweight (WHO, 2021). This will among other consequences place an additional burden on healthcare systems, already strained by the world's aging population and a growing number of elderly people, many of whom in need of extensive (and expensive) care (Saengpassa, 2018).

Obesity and related NCDs are largely preventable, though (WHO, 2021). At the individual level, people can limit their intake of foods high in fats and sugars, eat more fruit and vegetables, and exercise (WHO, 2017, 2021). The food industry can also play a significant role. It can reduce the fat, sugar, and salt content of processed foods, ensure that healthy and nutritious choices are

available to all consumers and affordable, and restrict the marketing of foods high in sugars, salt, and fats, especially those aimed at children and teenagers (Porter et al., 2014). Public policies promoting healthier dietary habits and curbing the aggressive marketing of unhealthy foods and beverages can help as well. Governments could, for example, impose a tax on sugar-sweetened beverages (Story et al., 2009). Adopting policies that promote healthy and nutritious food products at prices consumers can afford and curb the offering of unhealthy beverages and processed food, however, remains a challenge as they affect the bottom line of agribusiness giants and encourage aggressive lobbying.

Supply and Demand

The world's population is projected to grow from 7.9 billion today to approximately 9.5 billion by 2050 (WHO, 2017; US Census Bureau, 2020; UN, 2022a). Globally, the size of the middle class could increase from 3.2 billion in 2020 to 4.9 billion by 2030 (with 80% of it coming from Asia), and its purchasing power could grow from USD21 trillion to USD56 trillion, with most of it (85%) also coming from Asia (Organisation for Economic Co-operation and Development [OECD], 2010; IMF 2023). In Indonesia alone, some 8 million to 9 million people are expected to enter the middle class each year in the next decades, with millions of others in the region making a similar transition and eagerly embracing consumerism (Boston Consulting Group, 2013; ASEAN, 2023). Millions of Vietnamese are also projected to become middle class in the years to come as the country has been transforming its economy from a low-end agricultural exporter to a successful middle-range manufacturing exporter (ASEAN, 2023; IMF, 2023). More people are joining the ranks of the middle class in Malaysia, Thailand, and low-income member states, albeit at a slower rate (ASEAN, 2023; Bulman et al., 2017). Rising incomes are hastening "a dietary transition towards higher consumption of meat, fruits, and vegetables, relative to that of cereals" (WHO, 2017).

This is happening against a backdrop of rapid urbanization (World Bank, 2022). By 2050, more than 68% of the world's population will live in cities (UN, 2017a; US Census Bureau, 2020). In Southeast Asia, the number of people living in urban areas is projected to increase from 50 percent in 2020 to 64.2 percent in 2050 (UN, 2018, 2022a; Bulman et al., 2017). As cities grow, so do risks, including food insecurity and malnutrition. The rising proportion of urban dwellers will not only reduce arable land, exacerbate unsanitary conditions, and increase the risk of CDs (WHO, 2021; Tirziu, 2020). It will further change dietary patterns and accelerate the demand for processed foods. Since higher urban incomes tend to increase the opportunity costs of preparing food, city people often favor food products that have a large amount of labor embedded in them and are easy to cook. This includes fast and processed food (e.g. instant noodles), whose nutritional value generally tend to be considerably reduced (World Bank, 2022; WHO, 2017).

Food, however, is only one of two ways agricultural products are used. Non-food uses of agricultural crops include feed and raw materials for biofuels and various other industrial uses. One good example is bioethanol that is produced with either wheat, sugarcane, or corn, depending on the country where it is made (European Parliament, 2005). Rising oil prices favor the development of fuels, energy, and materials from agricultural products. Demand for crops for non-food use has been growing as a result. The need to produce more meat is also boosting the demand for feed. Consequently, whenever production is reduced by natural disasters, the risk of a price hike increases as demand remains stable.

On the supply side, rice remains Asians' main staple. Grown and consumed by millions, rice delivers much of their basic caloric need (International Rice Research Institute [IRRI], n.d.). This is still the case even though the importance of rice in meeting total caloric consumption has diminished in tandem with economic development and changing lifestyles and eating habits. As diets have diversified, the per capita consumption of rice has been decreasing. From 123kg/person on average in 1972, it has come down to approximately 70kg/person today (Fukagawa & Ziska, 2019). The focus on rice for food and nutrition security has led to a mix of government programs and interventions aimed at supporting the sector and encouraging domestic supplies (FAO, 2016).

Climate Change Induced Shocks to Food Production

The prevailing view among climate scientists is that, with temperatures likely to rise more rapidly than initially anticipated, weather conditions could be even more extreme (National Geographic Society, 2022; World Meteorological Organization [WMO], 2022). Whether wetter floods, drier droughts, and fiercer hurricanes will be the 'new' normal and mark the end of 'normal' times largely depends on climate change mitigation and the real level of commitment of the 196 countries-including ASEAN member states, who in December 2015 pledged to reduce greenhouse gas emission and limit the global average warming temperature increase to below 2° Celsius (3.6° Fahrenheit) under the Paris Agreement (UN COP21, 2015). ASEAN members states "have reaffirmed (their)commitments to the UNFCCC and the Paris Agreement, by upholding the principle of equity and common but differentiated responsibilities and respective capabilities" (ASEAN, 2021) and are committed-at least in theory-to forging a more resilient future by reducing existing disaster and climate-related risks and adapting to a changing climate. Only a concerted global effort to curb greenhouse gas emissions will help avert its worst effects (UN COP21, 2015).

The capacity of extreme weather events to upend food supply chains seems almost boundless (Malik et al., 2022; Focus Global Reporter, 2021; FAO, 2016). Low water levels on rivers may ground barges used to ferry food staples, air freight capacity for fresh produce can plummet as planes may be grounded by an act of God, and flash floods and mudslides may submerge warehouses and destroy roads and bridges, hampering food delivery. The list could go on and on. According to a report released by the FAO in March 2021, the annual occurrence of disasters is now more than three times that in the 1970s and 1980s (FAO, 2021a).

Relative to the secondary and tertiary sectors, agriculture absorbs a disproportionate 63% of the impact of natural disasters. Production losses suffered by farmers in the aftermath of a severe weather event are estimated to be twice as high as the direct damage to agriculture assets and infrastructure (UN, 2017b). Low and Middle-Income Countries, (LMICs) bear the brunt of it (FAO, 2021a). For the period analyzed in the FAO Report 2021 (2008-2018), Asia was the most hard-hit region, with overall economic losses adding up to a staggering USD 49 billion (FAO, 2021a). Destruction is all the higher as, unlike production units, farming activities obviously cannot be moved in areas less prone to the whims of Mother Nature.

The FAO Report 2021 identifies drought as the single greatest culprit of agricultural production loss, followed by floods and storms. Droughts impact agriculture almost exclusively. During the period examined, the primary sector sustained 82% of all drought impact, compared to 18% for the other two sectors (FAO, 2021a). And over 34% of crop and livestock production loss in LMICs was traced to drought, costing the sector USD 37 billion. Flood events can take many forms, ranging from slow-onset riverine floods and rapid-onset flash floods to coastal

floods caused by tidal and wave extremes (Few et al., 2004). They vary greatly in magnitude and impact. The sudden onset of flash flood makes them extremely difficult to predict and prepare for. Declines in sanitation in inundated areas increase the risk of CDs and the prevalence of vector-borne diseases (WHO, 2014; Ohl & Tapsell, 2000; IRRR, 1987). Losses due to food contamination come in addition to natural disaster losses and further reduce agricultural outputs. Extreme weather events have deleterious consequences on nutrition security as well (Focus Global Reporter, 2021; Ohl & Tapsell, 2000). For the first time ever, the 2021 edition of the FAO annual report converted economic losses into caloric and nutrition equivalents. Numbers are staggering. Crop and livestock production loss in LMICs between 2008 and 2018 were estimated to be equivalent to a loss of 6.9 trillion kilocalories per year, which equals the annual calorie intake of seven million adults (FAO, 2021a). Crop and livestock losses can cause prices to jump, which limits consumers' economic access to nutrient-rich food and further compounds malnutrition (WHO, 2022; Arunmas, 2020).

Investing in resilience and disaster risk reduction is of paramount importance to mitigate losses (Asian Development Bank [ADB], 2013; UN, 2012, 2017b). Powerful state-of-the-art assessment and data-gathering tools such as remote sensing, geospatial information gathering, drones and disaster robotics, and machine learning have much to offer in the quest to reduce disaster risks in agriculture (UN, 2022b). LMICs, however, often lack funds to acquire them.

This study is being conducted in the context of discovery as a means to: 1) make a critical assessment of the region's existing food and nutrition security strategies; 2) determine the impact of climate change-induced shocks to production on ASEAN's capacity to achieve food and nutrition security, and 3) make suggestions on possible ways to meet the challenges ahead. The study period is 2012-2022.

To this end, as noted in the introduction, the following research questions have been developed:

- 1) Can ASEAN sustainably provide sufficient, nutritious, safe, and affordable food to its growing population?
 - 2) Can the risk of natural disasters be mitigated?
- 3) Can the region decrease its dependence on the productivity paradigm and production intensification?

Therefore, in order to discover answers to these questions two qualitative methodologies were chosen for use in collecting and analyzing the data available (Chatfield, 2020). First secondary research was used to identify and collect data for analysis. The secondary sources for use in this process included existing data generated as part of organizational record keeping by (a) governmental institutions (Census Bureaus, Food and Drug Administration Bureaus, National Science and Technology Development Agencies, and Offices of Statistics), (b) international organizations (The Food and Agriculture Organization (FAO), The International Monetary Fund (IMF), The Organization for Economic Co-operation and Development (OECD), The United Nations (UN), and The World Bank (WB)), (c) regional organizations (The European Union (EU), and The Association of Southeast Asian Nations (ASEAN)), (d) inter-governmental agencies (The Asian Development Bank (ADB), the United Nations Economic and Social).

In addition to the data obtained through the secondary sources described above, observations and conversations were conducted both pro and pre-COVID-19 pandemic at food markets, supermarkets, restaurants, food courts, and on roads lined up with street vendors in the Hua Mak, Bangkapi, and Silom areas in Bangkok, Thailand, the old quarter in Hanoi, Vietnam, and the market area in Surabaya, Indonesia. Added to this were observations and conservations at food exhibitions in Bangkok and in farming and rice-growing areas in Northeast Thailand and in the course of short trips to the Chonburi, Nakhon Phanom, Rayong, and Sakon Nakhon provinces. Like the secondary data, data obtained from these observations and conversations was content analyzed, in this case using the themes developed with the secondary data as the basis for categorization.

In addition to providing additional data, the observation and conversation data served as a triangulation to see if the data provided in the secondary sources aligned with what was actually happening at an empirical level across the region. The combined use of these methodologies allowed for what Heaton (2008, p. 9) referred to as "verification, refutation, and refinement" purposes and served to help ensure accuracy and avoid bias.

Discussion

Supply and Demand

ASEAN's population currently stands at 672 million (UN, 2022a). Although the average annual growth rate has declined to close to 1% in the last decade down from over 2% in the early post-colonial era (still a pre-transitional period of high fertility rates), the region's population is projected to reach almost 800 million by mid-century (ASEANStats, 2021). Thus, 27 years from now, ASEAN will be confronted with the burden of feeding an additional 130 million people.

Because of this added burden, the productivity paradigm remains at the core of the region's food and nutrition strategy (Lang & Barling, 2012; FAO, 2021b). Until recently referred to as 'production intensification', the strategy to boost agricultural output to meet the growing demand for food has since been re-termed – somewhat oxymoronically – 'sustainable intensification' in reference to the need to take into account environmental concerns when increasing production (Cassman & Grassini, 2020). Whether this semantic change in the food and nutrition security public discourse signals a change of direction and a real determination to look for green solutions, such as, for example, insect farming or smart farming, or simply is a public relations effort to assuage growing public concerns over environmental issues remains to be seen. While intensification continues to be disproportionately centered on productivity (arguably, inescapably so for the time being), it is this author's view that ASEAN leaders now realize that the environment can no longer be sacrificed on the altar of productivity. However, in spite of its negative outcomes such as the degradation of the ecosystem and the loss of biodiversity, until new technologies and cultivation techniques offer truly viable alternatives, intensification, or more to the point, a 'cleaner' version of it if one goes by the latest semantic, will continue to be the preferred solution. Since rapid urbanization is reducing arable land, the region's crop production growth will mainly be driven by increased productivity rather than increased land use. This is all the more the case as strong measures are now in place to curb deforestation, until recently a common way to increase acreage (Welch & Graham, 2000; OECD & FAO, 2023). Indeed, as can observed across much of the region, rice fields are being turned into residential areas and/or industrial zones as megapolis keeps expanding, a phenomenon unlikely to slow down soon since industrial policies favor a high

concentration of resources in capital cities and large urban areas. Increasing productivity also means that more inputs (e.g. fertilizers) will be needed. Input prices, however, may continue to rise (Langemeier, 2023), which could raise production costs and lead to higher prices for consumers and therefore greater risk of food insecurity and malnutrition since affordability would be reduced (OECD & FAO, 2023). Raising yields also requires more investments in technology, and in the case of LMICs, improvements in farm management (Prasertkhorawong et al., 2020).

Similar to crop production, the growth in livestock and fish production will require further improvements in per-animal productivity, most notably more efficient herd management and higher feed intensity (OECD & FAO, 2023). Pig meat production, however, is still recovering from the outbreak of African Swine Fever (ASF) in 2019 in Cambodia, Indonesia, Laos, the Philippines, and Vietnam, where 'backyard' farms generally lack capital and are unequipped to deal with viruses when outbreaks occur (Turton, Yon, & Yuichi, 2019). The disease ravaged the hog herd and left the business of small-scale pig raisers in tatters. In Vietnam alone, 4.7 million pigs were culled to contain the outbreak and prevent it from spreading further (Songwanich, 2019). The outbreak led to a wide-scale substitution of pork with poultry, which due to the slow return to the pre-2019 level of pig-meat production is likely to continue. The rising demand for poultry pushed prices up. Given its favorable meat-to-feed price ratios and sustained profitability, poultry will probably account for most of the regional growth in meat production.

Historical trends in net export/import status across the region persist. Southeast Asia's geography still determines natural rice production capabilities (ADB, 2010). The upshot is a consistent pattern of net imports by maritime member states and high production and net exports from mainland countries, dominated by large river systems that provide ample water and flat land well suited to rice production. Data covering the period 2010-2020 indicates that Viet Nam, Cambodia, Laos, Thailand, and Myanmar are still net exporters of rice, and Indonesia, Malaysia, the Philippines, Singapore, and Brunei are net importers (Suvannaphakdy, 2022; Viet Nam National Trade Repository [VNTR], 2022). In Indonesia and the Philippines, the majority of rice consumption nevertheless continues to be met by domestic production as self-sufficiency rates stand at 90% and 80%, respectively.

Rice stockholding dominates national food security policies, all of them unsurprisingly aiming for self-sufficiency (ADB, 2010). Since it currently imports about 90% of its food, Singapore has developed a multi-pronged approach to its own food security (Yong, 2017). First, rice imports are managed through a strategic reserve under which licensed importers are required to stockpile rice equivalent to twice their monthly import quantity. Second, to ensure that it is never held for ransom by the vagaries of any market, the city-state has also diversified its sources of imports and achieved contractual price stability. Third, local food production is to provide a buffer in times of sudden import disruptions. Due to obvious land constraints, Singapore is betting on agricultural innovation to increase productivity. Food projects lined up include an 18-acre Agri-Food Innovation Park to be used for high-tech vertical farming, insect farming, and food-related R&D, and a farm on the roof of one the malls, using vertical racks and hydroponics to grow leafy greens and herbs. Fourth, public-private partnerships have been forged to support these various strategies (Yong, 2017). While other member states do not need to set up farms on the rooftops of malls to grow vegetables, they nevertheless need to emulate Singapore's innovative approach and come up with their own creative solutions to substantially increase production without having to exclusively resort to production intensification. Regional cooperation may be the best avenue to devise sustainable alternatives and make the shift to high-tech farming.

Every ASEAN member state is now part of the ASEAN Plus Three Emergency Rice Reserve (APTERR). The scheme, initially established in 1979 on a trial basis by Indonesia, Malaysia, the Philippines, Singapore, and Thailand, was converted into the current APTERR in 2012, when Japan, South Korea, and China joined forces with ASEAN countries (APTERR, 2023). Each country pledges part of its own stocks, which can then be used to meet emergency requirements. Owning governments are responsible for the management costs of their stocks and for ensuring that they remain fit for human consumption. The agreement, though, does not require the holding of physical stocks. The three non-ASEAN members account for the largest amounts of earmarked stocks (APTERR, 2023).

In 2018, at the request of ASEAN, the Organization for Economic Co-operation and Development (OECD) explored the feasibility of a pan-ASEAN stockholding policy integrating every ASEAN rice market and concluded that it could reduce the rate of food insecurity (OECD, 2018). However, to capture all its benefits, significant trade barriers, all of them part of member states' food security policies, would have to be eliminated. Since member states currently heavily intervene in markets and impose high tariffs on rice imports, this means that, as part of transitioning to zero tariffs over the medium term, rice would have to be excluded from the General Exception List contained in the Agreement on Common Effective Preferential Tariff (CEPT) Scheme concluded in 1992 when ASEAN Free Trade Area (AFTA) was established (CEPT, 1992; Ahamat, 2017). Non-tariff barriers, most notably import licensing and monopoly import arrangements, would have to be removed as well (ASEAN, 2002). While ASEAN leaders recognized the benefits of an integrated trade rice market, given the many vested national interests and security imperatives at stake, its implementation may be a long way off.

Climate-Induced Shocks to Food Production

The scale of the damage caused by climate change-induced extreme weather events is staggering. A case in point is the widespread drought in Thailand in 2019 and the torrential rains that followed. They reduced the main rice harvest by 4-12.5% year-on-year and the second harvest by approximately 54% (Treerutkuarkul, 2021). Such climate-related challenges directly affect agricultural productivity, leading to yield losses, crop failures, and livestock deaths (Lacetera, 2019). Smallholder farmers, who constitute a significant portion of the agricultural workforce in ASEAN, are particularly vulnerable due to limited access to resources and adaptive capacities. With climate change intensifying, they face the urgent need to adapt their farming practices. However, the success of adaptation strategies relies on farmers having a sufficient understanding of climate change and its implications (Nor Diana et al., 2022).

Global warming also affects the region's food production in other ways. There is evidence that, as temperatures are rising, the distribution of inland fish species will shift and lead to the local extinction of some fish. Moreover, rising sea levels may threaten coastal aquaculture production in the deltas and estuaries (FAO, 2017, 2020).

Supply problems in one ASEAN country may be quickly felt in food-insecure states, including those on the other side of the globe. For example, when, in the aftermath of the 2019 drought, Thailand curbed its rice production, Vietnam saw its rice exports rose 31.7% year-on-year. This caused Hanoi to temporarily suspend its rice exports to ensure it had sufficient domestic supplies (Bangkok Post, 2020). For member states and other nations dependent on producer nations for their food imports, this meant growing food security fears.

To reduce the vulnerabilities of its food production systems, the region is betting on biotechnology. Efforts range from low-tech approaches, such as bio-fertilizers, to high-tech and advanced DNA-based methods, such as Genetically Modified Organisms (GMOs). Since rice is the region's main staple, the focus has been on crossbreeding various types of rice which, unlike conventional rice varieties less suited to warmer temperatures, have the desirable characteristics to survive hotter weather and heavier rains. Research by the ASEAN-based International Rice Research Institute (IRRI) has led to the development of varieties of rice more resilient to the changing environment, more resistant to diseases, and capable of better withstanding floods, droughts, high temperatures, and other harmful effects of climate change. Currently, more than half of Southeast Asia's rice area is planted with IRRI-bred varieties or their progenies (IRRI, n.d.).

In addition, joint research by Thailand's National Center for Genetic Engineering and Biotechnology, the National Science and Technology Development Agency, and two Thai universities has culminated with the development of a hybrid glutinous rice variety (Karnjanatawe, 2020). The plant is shorter than traditional glutinous rice varieties, which makes it more resistant to strong winds, less likely to be toppled in the rain, and easier to machine harvest. It also has a much higher yield (800 kg-1,200 kg per acre versus 500 kg-600 kg). Above all, it can resist diseases and withstand short-term droughts.

But while changing the DNA of some breeds may be the region's best chance to sustainably achieve food and nutrition security against a backdrop of climate change, diminishing water supply, ecosystem degradation; and biodiversity loss, GMOs might lead to a decline in nutritional quality and have undesirable effects on people's health, let alone on the environment (Ghimire et al., 2023). While conclusive scientific evidence is lacking on their actual repercussions, one additional concern that those opposed to GMO manipulations have pointed out is that new crop varieties could end up being developed by private sector companies that have no explicit commitment to public goods (and possibly no ethics) - only profit.

The trade-off between food security and food safety is not ineluctable, though. Technological breakthroughs and the introduction of new methods of cultivation may eventually become viable alternatives and therefore greatly reduce the need for more DNA manipulations. The application of new digital technologies can play a crucial role in improving food security. First, smart farming driven by digitalized, aggregated, and analyzed data and information can lead to more efficient and sustainable farming practices (Ahmed et al., 2019). Second, real-time information availability for farms and fisheries allows for better decision-making and resource management (Teng, 2019). These technologies are revolutionizing agriculture and food systems and not only enable governments to enhance the efficiency and effectiveness of existing policies and programs, but also to design better ones (Montesclaros, 2023). In fact, if the resources allocated for the development of more GMOs were redirected towards research on greener farm practices, it is conceivable that the rate of innovation would substantially rise as attested by the strategy in place in Singapore. This would obviously reduce the need for more GMOs.

With the perspective of once-in-a-century disasters likely to arrive more frequently, there has been a shift from reactive to proactive disaster management (ASEAN, 2022a). Unlike pollution and rising temperatures, which can be dealt with providing there is governmental will to do so and a genuine global warming battle plan, natural disasters unrelated to climate changes (e. g. volcano eruptions) are beyond the control of state authorities. But whilst they cannot be stopped, their impact can be mitigated by effective disaster management.

At the domestic level, national disaster management agencies have been set up and tasked with coordinating disaster relief efforts with a focus on prevention, preparedness, detection, early warning, and greater reliance on new technologies (Few et al., 2004). Still, as reported by the WHO's Southeast Asia office, one area in need of improvement is the monitoring and surveillance of disease outbreaks during floods (WMO, 2022; Marks, 2020). There has also been extensive transnational collaboration. One example is the Integrated Disaster Risk Management (IDRM) fund established by ADB and Canada to finance technical assistance projects and knowledge-sharing activities in the region (ADB, 2021). Another is the Asia-Pacific Disaster Resilience Network, that focalizes on the communication of detailed preparedness plans before disaster strikes (UN, 2022b). The theme chosen by ASEAN for the commemoration of ASEAN Day for Disaster Management in 2022 underscores the importance for the region to work together. It reads as follows: Stronger together in balancing action to enhance localization for disaster resilience (ASEAN 2022b).

Conclusion

One of the mounting threats to ASEAN's ability to continuously achieve food and nutrition security in the region is climate change-induced shocks to food production. Despite ASEAN's success in increasing its food output through production intensification (recently renamed sustainable intensification), the perspective of more frequent, more intense, and more devastating extreme weather events reducing crop yields, the size of the livestock, and aquaculture production raises doubts as to whether ASEAN can sustainably supply food and water in sufficient quantities and nutrient-rich products at affordable prices. This is all the more doubtful as output imbalances are compounded by the food losses and wastage that occur at all stages of the food supply chain and claim an additional significant proportion of the region's agricultural production. The challenges posed by extreme weather events can be summarized as follows:

The region can be expected to experience more intense and more frequent production shocks associated with climatological, hydrological, and meteorological events. They could significantly undermine its sustained capacity to supply safe, nutritious, and affordable food to its growing population.

Regardless of the semantic used ('production intensification' or 'sustainable intensification'), both terms allude to a disproportionate emphasis on productivity that will continue to generate negative environmental outcomes such as land and water degradation and biodiversity loss.

Farmers remain hard pressed to shift away from conventional agriculture and the heavy use of chemicals and adopt new modes of cultivation and new technologies.

The measures taken by ASEAN to reduce greenhouse gas emission and limit the global average warming temperature increase to below 2° Celsius (3.6° Fahrenheit) under the Paris Agreement may tie up a large share of capital resources and meet with resistance as they are likely to involve painful changes.

While the causes of malnutrition are multifactorial, price hikes caused by reduced yields and changing eating habits and lifestyles are likely to increase the prevalence of NCDs.

One clear message emerging from this paper is that 'business-as-usual' is no longer an option. The region needs to transit to more sustainable, resilient, and efficient agricultural systems. Artificial Intelligence (AI) and smart farming may turn out to be promising avenues even though the issue of data ownership could, initially at least, be a substantial obstacle to their widespread use.

Robots, for example, are now capable of identifying through a series of algorithms weeds that need to be removed in say a rice field and pull them out, rendering unnecessary the use of herbicides. Under a business-as-usual scenario, though, the region's food and nutrition security are likely to be jeopardized. As part of moving away from a 'business as usual' scenario.

Recommendations

- 1. Since the additional amount of food needed in the coming decades is expected to be produced mainly through yield increase and the intensification of production, rather than through major expansion of cultivated areas, the onus should be on producers to develop appropriate techniques, preferably organic, biodynamic, or high-tech, to minimize or eliminate the risk of chemical food adulteration and preserve the environment while increasing productivity.
- 2. Loan schemes and subsidy programs should be made available to promote environmentally friendly farming systems and ensure farmers' commitment to sustainable farming practices, including those built upon indigenous and traditional knowledge.
- 3. Consistent with the Paris Agreement pledge, more attention should be paid to so-called 'nature-based climate solutions', including the conservation, restoration, and improved management of forests, wetlands, and agricultural lands to increase carbon dioxide sequestration and reduce its emission.
- 4. Since ASEAN LMICs are still unable to meet the international regulatory requirements set by international organizations, the application of food safety standards in trade agreements should be supplemented by measures to assist them in strengthening national food control regulatory frameworks and enhancing food safety management along food chains. Specifically, the science-based measures implemented by member states should cover the entire food chain from the primary production, processing, and storage of food products to their distribution and provide guidance for ensuring fair practices in food trade while facilitating their free movement across the region.

Recommendations for Future Studies

Future research could focus on empirical studies in the region that test the scope and efficiency of the measures implemented and on the application of digital technologies. It could also focus on further identifying and understanding the various threats to the region posed by climate change.

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Assessment of Green Finance Products Impacts on Commercial Bank Performance: A Study of Thai 3 Major Banks (2018-2022)

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Abstract

Thailand is a developing economic country in South East Asia, it has had a high growth in economic prospects in recent years. In the modern world, green financial products have increased and caught the interest of investors. Banks in many countries have been generating green products seeking to improve their profitability and performance as well as improving the country's environment, especially in Thailand. This research paper aims to focus on green loans and measurement of banks' performance by looking at the EBITDA (Earmings Before Interest, Tax, Depreciation and Amortizations), ratio of the three major banks in Thailand; namely, Kasikornbank, Siam Commercial Bank, and Bangkok Bank where the data collected from each bank financial reports and some is calculated by hand such as Green Loan Ratio. Therefore, it is crucial to study how banks generate green loans to impact the banks' performance, leading to further study to improve the green economy in Thailand. Using the data of three commercial banks from 2018 to 2022 as samples, the random effects model was used for correlation analysis. As a result, the study shows that there is a correlation between green loans and banks' performance by looking at the EBITDA. The study could be expanded in the future and provide a contribution for the financial sector in Thailand in order to have more motivation playing in green financial products.

Keywords: Bank's Performance, EBITDA, Green Loans, Thailand

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Introduction

There are increasing environmental concerns across the world nowadays. The number of listed companies in the green business group constitutes a small proportion, accounting for only 0.4% of all registered companies (excluding the power plant business). With all the slow growth in the operations, a better and easier potential way to attract the investors to understand and enclose with the social responsibility activities would be banks issuing green loans.

Importance of Green Loans

Green loan providers look beyond profits because every person or business that borrows marks the beginning of change. Naturally, banks must factor in financial risks to prevent deposits from turning into bad debt. But, what banks can achieve through green financial products is the facilitation of loans that benefit both society and the environment, potentially reducing the impact on the environment. This commitment is reflected in varying interest rates.

Role of Banks in Sustainable Development

Banks should play a key role in driving the transformation of the business sector for the better. Unfortunately, the Thai financial sector and banks have yet to acknowledge the significance of sustainable development. They often perceive themselves as not directly contributing to the depletion of natural resources.

Objective and Research Question

To examine through empirical evidence the likely benefits banks will receive from green loans, this study, therefore, uses EBITDA to examine whether the availability of green loan products affects the better performance of the banking business. In this research, we will use the theory following the study of Syndicate green lending and lead bank performance. The research question is: we would like to know how green loans affect the banks' performance in terms of EBITDA in 3 top Thai biggest banks: Kasikornbank, Siam Commercial Bank, and Bangkok Bank. This paper is the first to investigate the relationship between green lending and Thai banks' performance using EBITDA, seeking to analyze the green lending impacting on better performances as a result. In addition, we will use the factors that influence the EBITDA, including Green Credit Ratio (GLR), Total Assets (TA), Liquidity Ratio (LR), Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), and Gross Domestic Product (GDP), due to the scarcity of the prior study on the correlation of the green lending and EBITDA.

- 1. To examine whether there is a relationship between green lending and the banks' performance
- 2. To provide contribution to financial sectors in Thailand in order to have more motivation to play in the green-products trends and for investors by investing into the loans.

Literature Review

Financial Products

1. Green Loan

Green finance operations are not just Corporate Social Responsibility (CSR) activities, but it is beyond strategy to attract investors conserving the environment and increase their life utility (Sheikh, 2014). Green loans are offered as a reduction in interest rates in the

Global Business Loan Program. These loans are available to customers whose objectives include increasing energy efficiency, protecting pollution prevention and control in their businesses, procuring and distributing products that support the production or consumption of environmentally friendly products, sourcing products from responsible production sources, and providing services or consulting for businesses in environmental management or sustainable practices (Gilchriast et al., 2021). Some papers said that approaching green products would also improve the firm's competitiveness as well (Jose et al., 2009).

2. GLR

The green credit ratio is a metric that assesses the share of green credit balance in the total loan portfolio. It serves for evaluating the progress of commercial banks in advancing green credit initiatives. Prior research, obtained data from 20 China commercial banks from 2009 to 2018, implying that GLR is negatively associated with the bank's performance as the higher the green credit ratio, the lower the rate of banks' profitability by running the Hausman test (Chang, 2021). Also, the result from Scholtens and Dam (2007) by looking at 27 banks with green credit and 57 banks without green credit stated that the green credit had a negative impact on the commercial banks in China. Through the overall operation, expenses increased, leading to lower profitability and performance.

Bank Performance by Using EBITDA

For so long, measuring banks performance and many other financial institutions has used risk and return aspects to measure. Some use a variety of ratios; for example, Return on Asset (ROA), Return on Equity (ROE), or other financial ratios (Sheikh, 2014). In this paper, we will use EBITDA, an acronym for Earnings Before Interest, Tax, Depreciation, and Amortization, representing the profit generated from a company's operations. The benefit of EBITDA is that it allows people to understand the true profitability of all operations. By initially trimming expenses that are not considered normal operating expenses, it enables a clear overview of the overall business of your company. Positive EBITDA has a favorable impact on the company: If the Net Profit of the company or business is negative, but EBITDA remains positive, the company or business is still making a profit. This can positively influence the company's image and future growth (Cornier et al., 2017).

As for bank performance, Buscemi (2015) suggested that EBITDA is easy to calculate and often used to operate cash flow and an accounting tool to demonstrate the longevity and productivity of a business as well. Hence, businesses, even the small ones in the modern world, most likely use EBITDA to see the business cycle. On the contrary, Rosebrock (2021) said that the EBITDA should not have been used to observe the performance since it discounted cash-flow strengths.

Factors influencing EBITDA

1. Capital Adequacy Ratio (CAR)

Xiaoyi (2021) explored variables related to financial performance received from bank lending have been studied. One of them is the capital adequacy ratio. By examining the average return on total assets about the profits of banks originating from China in green credit, Chang (2021) believed that the capital adequacy ratio is a tool that banks use to measure how much risk they can afford to pay. This can indicate the stability of a bank based on its money management and debt management. In the study case of Indonesian banks, CAR resulted in a negative relationship with the bank performance (Hersugondo et al., 2021). This result complies with

the research from Tan and Anchor (2016) who examined the impact of risk and competition on bank profitability in China which confirmed that there is a negative correlation between CAR and bank performance including ROE and NIM provided negative correlation with the CAR. However, not all studies imply negative relationships, Hersugondo et al. (2021) found that there is no relationship between CAR and ROA in Indonesian banks.

2. Total Assest (TA)

The bank's Total Assets (TA) are used to measure its size. Using total assets for comparing the performance of banks of various sizes, the larger bank generates greater EBITDA per unit of total assets. According to Zhao Ranning from Shanghai University implies that green credit and the bank's total assets are significantly negatively correlated, with 36 commercial banks listed in China (Ranning, 2022). Hersugondo et al. (2021) studied the case in Indonesia, taking data from both state-owned and private commercial banks in 2015 to 2019, also stated that the bank sizes have positive relationship with the banks performance.

3. Liquidity Ratio (LR)

Liquidity Ratios (LR) is one of the crucial financial tools that measure financial performance (Loh, 2017). It will be used to measure the liquidity of the banks (Chang, 2021). LR is expected to be negatively significant to the banks' performances. The result from measuring 69 Indian bank's performance, LR is found to have negative coefficient as it expected (Almaqtari et al., 2018). Similarly, Loh (2017) had finalized that the liquidity ratio was shown to have no relationship with profitability and overall performance of company level. However, there are some studies from Tiberiu (2015) that explain LR can have both effects.

4. Non-Performing Loan (NPL)

Non-Performing loans, often referred to as loans in prolonged arrears, are characterized by their inability to generate income for the bank. These loans are typically categorized based on the duration of their overdue status. Various countries have distinct regulations regarding the classification of non-performing loans. Generally, a loan is deemed non-performing if the debtor fails to give money to the bank for more than 90 days. Most of the banks aimed to prevent the loans from turning into non-performing loans (SCB Annual Report, 2021). Running (2022) implies from 36 commercial banks in China that there will be a negative relationship between banks' profitability and NPL, indicating that the less NPL, the more green loan lending and the performance of the bank. Similarly, Cui et al. (2018) also found a negative correlation between NPL and the bank's performance in the 24 Chinese banks they have studied.

5. Gross Domestic Product (GDP)

GDP is an economic indicator that is commonly used as it reflects the overall economy as a whole. In this paper, GDP is expected to be positively correlated with the bank performance as economic growth and financial performance are well-associated (Pasiouras & Kosmidou, 2007). In the prior studies, different studies were focused on several countries; for example, India. However, there was no evidence of GDP affecting the bank profitability in Indian banks (Almaqtari et al., 2018). Similarly, Loh (2017) stated that GDP had no relationship with the profitability and performance of the company level.

Theoretical Framework

1. Stakeholder Theory

A stakeholder is a group or individual who will strongly influence the firm's activities and also impact on the firm's decision-making processes. They are most likely based on

the firms or other parties to satisfy their interests (Freeman, 1984). Donaldson and Preston (1995) said that we must not only look into stakeholders' wealth but also stakeholder's demands. With four key original points of stakeholder theory, strategic planning, systematic, corporate social responsibility, and organization theory, each firm has a different relationship with its stakeholders which may affect or are affected by the firm's decisions (Mainardes et al., 2011). The terms of stakeholder theory have been adapted to many perspectives including financial institutions, such as green lending. People are more aware and concerned about what the environment will impact their life, so they tend to change their behaviors in order to save the environment (Wong, 2012). With all mentioned above, this theory has paved the way to create the hypothesis of the study about banks issuing green loans impacting their performance. The banks' stakeholders include the government, investors, and issuing companies. Xie et al. (2019) stated that green product innovation have a positive impact on the financial performance as a whole. Not only the government and green companies who are interested in development of the environment would benefit from the activity, but also investors will gain interests directly from the loans and have a good willingness for helping the society. Also, feedback from the stakeholders could be beneficial for the firms to maximize the use of their resources and gain competitive advantages (Zhang et al., 2020)

2. Triple Bottom Line Theory

The Triple Bottom Lines which seeks to expand the concepts of social responsibility to include not just the financial success of a business but also the benefit of the planet and human beings: Profit, Planet, and People. The theory has helped organizations not only in the economic aspects but also in social responsibility as well. Furthermore, it can be used as a parameter of the organizations' performance in terms of business and social responsibility (Zak, 2015). Afterward, when we look into the impact of green loans and the bank's performance, the TBL would help to encourage overall organizations. Therefore, it tends to have a high possibility to stimulate green finance impacting the overall economy and society which will reflect back to, undeniably, a positive relationship with the EBITDA of the banks.

The remainder of the paper proceeds as follows: First, we uphold both stakeholder and triple bottom line theory directly creating the hypothesis. Second, the studies can guarantee that having green products is correlated with the bank's EBITDA.

3. Relevant Research

On the other hand, there is doubt to the theory, according to Baggio and Cooper (2010), stakeholder interests typically conflict with one another, making it impossible for management to make a clear choice. Stieb (2009), who questioned the power-sharing supported by Freeman (2002, 2008), took the same stance. The author questioned how you may deal with vendors, the neighborhood, and customers while in charge of the business. This appears to be, at the very least, not feasible to the real world.

Additionally, there are some theories about the TBL which only look into one dimension, not as a whole. Hence, they decided to use paradox theory instead by stating that the theory provided the conceptual foundations for shifting beyond business sustainability. And the result suggested that the organizations will be exhausted once they try to address all three instead of all one (Walker et al., 2020).

Methodology

Research Design

In this paper, the researcher adopted a Pearson Correlation to see the relationship between green loans and the Thai 3 big banks' performance: Kasikornbank, Siam Commercial Bank, and Bangkok Bank. The equation below illustrates a correlation between dependent variable and independent variables, which are EBITDA, GLR, TA, LR, CAR, NPL, and GDP respectively. The equation takes the following form:

$$\pmb{EBITDA} = \beta_0 + \beta_1 TA + \beta_2 LR + \beta_3 CAR + \beta_4 NPL + \beta_5 GLR + \beta_6 GDP + \varepsilon_1$$

Table 1 Variables Description

Variables	Label	Description					
Green Loan	GLR	Total Green Loan issued in the year/ Total Loan issued in the year					
Potential Internal Factors of Banks that Influence EBITDA							
Total Asset	TA	To compare the performance of banks of different sizes, the larger bank tends to generate more EBITDA per unit of total assets.					
Liquidity Ratios	LR	Liquidity ratios a representative of financial health					
Capital Adequacy Ratio	CAR	The higher capital adequacy ratios can lead to higher operating income.					
Non-Performing Loans	NPL	Total of non-performing loans/total loans (%) as there is a correlation that the higher non-performing loan ratios may reduce their operating income.					
Potential External Factors that Influence EBITDA							
GDP	GDP	Market Conditions					

Hypothesis

- 1. H0: There is no significant correlation between bank performance and the proportion of green loans.
- 2. H1: There is a significant positive correlation between bank performance and the proportion of green loans.

Data Collection

As the researcher would like to study the bank's performance, the data is collected from each bank's financial annual reports between 2018 and 2022. Also, some ratio needs to be calculated by hand by collecting other raw numbers; for example, Green Loans Ratio, which is the number of Total Green Loan issued in the year/ Total Loan issued in the year. As each bank provides the number of total issued loans, the researcher needs to sum up the number of green

loans which are included by many product types. Next, for external factors, Gross Domestic Product numbers from 2018 to 2022 are collected from the National Economic and Social Development Council. After all data are obtained, the data can be now used to run the correlation coefficient to answer our research questions. The equations below are provided for each bank to use in the Pearson Correlation.

$$\begin{split} EBITDA_{KBANK} &= \beta_0 + \beta_1 TA + \beta_2 LR + \beta_3 CAR + \beta_4 NPL + \beta_5 GLR + \beta_6 GDP + \varepsilon_1 \\ EBITDA_{SCB} &= \beta_0 + \beta_1 TA + \beta_2 LR + \beta_3 CAR + \beta_4 NPL + \beta_5 GLR + \beta_6 GDP + \varepsilon_1 \\ EBITDA_{BBL} &= \beta_0 + \beta_1 TA + \beta_2 LR + \beta_3 CAR + \beta_4 NPL + \beta_5 GLR + \beta_6 GDP + \varepsilon_1 \end{split}$$

Results

In this research, we have used the Pearson Correlation and tested each bank's correlation model. The following tables illustrate compelling insights into the green finance product: Green Loans and the factors that influence EBITDA as we present a comprehensive analysis of the impact of Green Finance Products on the operational and financial success of Thailand's three prominent banks using EBITDA throughout the period spanning 2018 to 2022.

Table 2 Kasikornbank

Ratio	EBITDA	GDP	TA	LR	CAR	NPL	GLR
EBITDA	1.000	0.731	-0.737	0.349	0.119	-0.378	0.105
GDP	0.731	1.000	-0.577	-0.121	0.660	0.142	-0.578
TA	-0.737	-0.577	1.000	-0.618	0.159	-0.007	-0.014
LR	0.349	-0.121	-0.618	1.000	-0.527	-0.537	0.684
CAR	0.119	0.660	0.159	-0.527	1.000	0.131	-0.707
NPL	-0.378	0.142	-0.007	-0.537	0.131	1.000	-0.787
GLR	0.105	-0.578	-0.014	0.684	-0.707	-0.787	1.000

Table 3 Siam Commercial Bank

Ratio	EBITDA	GDP	TA	LR	CAR	NPL	GLR
EBITDA	1.000	0.715	-0.219	0.208	-0.305	-0.130	0.303
GDP	0.715	1.000	-0.613	-0.202	0.286	-0.013	0.174
TA	-0.219	-0.613	1.000	0.889	0.046	0.667	0.391
LR	0.208	-0.202	0.889	1.000	0.092	0.738	0.532
CAR	-0.305	0.286	0.046	0.092	1.000	0.735	0.257
NPL	-0.130	-0.013	0.667	0.738	0.735	1.000	0.543
GLR	0.303	0.174	0.391	0.532	0.257	0.543	1.000

Table 4 Bangkok Bank

Ratio	EBITDA	GDP	TA	LR	CAR	NPL	GLR
EBITDA	1.000	0.661	-0.598	-0.380	0.297	-0.421	-0.744
GDP	0.661	1.000	-0.624	-0.223	0.613	0.009	-0.284
TA	-0.598	-0.624	1.000	0.899	0.228	-0.444	0.030
LR	-0.380	-0.223	0.899	1.000	0.626	-0.564	-0.148
CAR	0.297	0.613	0.228	0.626	1.000	-0.533	-0.437
NPL	-0.421	0.009	-0.444	-0.564	-0.533	1.000	0.874
GLR	-0.744	-0.284	0.030	-0.148	-0.437	0.874	1.000

Discussion

EBITDA	GDP	TA	LR	CAR	NPL	GLR
Kbank	0.731	-0.737	0.349	0.119	-0.378	0.105
SCB	0.715	-0.219	0.208	-0.305	-0.130	0.303
BBL	0.661	-0.598	-0.380	0.297	-0.421	-0.744

As you can see from the shown table, it is quite surprising that the results of the correlation between EBITDA and GLR is particularly varied, ranging from a very weak positive correlation at Kbank to a strong negative one at BBL.

For KBank, the correlation of 0.105 presents a weak positive correlation, showing that although its involvement in green loans has a slight positive association with its operational profitability, the relationship is not strong.

For SCB, the correlation of 0.303 presents a moderate positive correlation between its EBITDA and green loans. This means that SCB's strategy in green financing might be positively influencing its operational profitability more so than Kbank.

However, for BBL, the correlation of -0.744 presents a strong negative correlation. This means that an increased proportion of green loans in the bank portfolios is associated with a decrease in EBITDA.

This means that the relationship of green loans on profitability and performance may depend on the individual bank's approach and overall strategy. Another important point is that the profitability of issuing green loans is not that good, so most banks may not take it seriously. To add, one might say that banks may only issue green loans just to show their awareness about the environment in order to improve their image. Furthermore, GDP also contributes as one of the factors that affect the ability of the bank to generate profit each year. To illustrate, if there is an increase in GDP, it is likely that the profit of the bank will rise. Therefore, this might be another reason why the correlations still vary.

As the researcher would like to know more about why the results of EBITDA and GLR are varied that much. Hence, we have found that the bottom line is that the method chosen to provide green loans by environmental considerations carries significant implications for the overall portfolio. It affects the organization's goal of integrating a well-coordinated banking

company that seamlessly incorporates green loans. For example, Siam Commercial Bank's financial goals align with its commitment to offering financial services in various formats and to a wide range of customers, regardless of sustainability. The bank incorporates diverse offerings into its portfolio, targeting a broader group by establishing guidelines for loan issuance to SME entrepreneurs in four main categories. These categories include businesses focused on enhancing energy efficiency, pollution management, activities in transportation using clean energy, and support for women-owned businesses ("Green/ESG Products and Services," n.d.). When small and medium-sized enterprises have a broad customer base, this positively influences their capability. However, Bangkok Bank may still not be able to integrate green lending activities well enough into the overall portfolio, thus becoming an obstacle in operations. Fundamental risk assessment tools may view green lending as a separate activity, resulting in a negative relationship between green lending and EBITDA because this financing cannot yet be fully leveraged. It is considered that Bangkok Bank is committed to providing sustainable loans, but the scope of lending and risk assessment may not be in a business that aims to make a profit well enough. The amount that banks are able to provide to green loans is significantly lower than other banks. This is an indicator that banks are not integrating their portfolios well enough with the overall portfolio.

Conclusions

The results attained in the article may be useful to commercial banks, analysts, and investors to create their view on managing and investing in Green Financial Services and Developing the perspective of Green Financial Products among others. Green Banking could promote more sustainable business practices and reduce the negative environmental impact of banking activities by providing loans for environmentally friendly initiatives.

Limitations and Future Research

This research contains potential kinds of limitations. One limitation of this study is that the data are solely focused on three big banks in Thailand: KBANK, SCB, and BBL, which may have limitations on the received outcomes. Another limitation is that other bank performance measurements may also be influenced by green financial products as well. Consequently, the study contributed only six variables that influence EBITDA, other factors may also influence the bank's EBITDA. Additionally, the study of the correlation between bank's performance and green loans is difficult to find in the prior papers in Thai's study since the green loans were recently launched to the market in less than five years. So, the researcher barely found any papers that study directly about green loans and EBITDA. Next, as mentioned before, some data that needs to be calculated by hand. Each bank's financial annual report has different labels and implications on its data, it may affect the data collection method and prevent the research from being conducted to the full extent. The results may not be generalized, as each bank has a different meaning for each variable, but the author tried to collect the nearest data that holds similar meaning and value terms to the description.

Lastly, the study's result is limited to only one green financial product: Green Loan, which the outcomes can see only impact on one green financial product. According to the prior literature, the findings varied across the types of green financial products.

When conducting future research, it is essential to conduct a wider type of green financial product; for example, green bonds. Along with different potential measurements, such as ROA, ROE, and NPM, to ensure the accuracy and reliability of the findings which can lead to a new path of explanation of the relationship between a bank's performance and green finance products.

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An Investigation into the Influence of Emotional Labor on Task Performance: A Case Study of Bank Tellers in Handan City

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Abstract

This study is dedicated to a deep exploration of the relationship between emotional labor and task performance among frontline employees in commercial banks in Handan City. Through empirical research methods, it comprehensively examines the interactions among emotional labor, emotional regulation self-efficacy, and task performance, aiming to provide theoretical guidance for the management of emotional labor and task performance in grassroots banks. Data were collected via an online survey of bank tellers in Handan City, receiving 462 questionnaires, of which 403 were valid. The data were analyzed using SPSS 21. The study set four objectives: 1) to systematically assess the direct impact of emotional labor on employee task performance; 2) to explore the mediating role of emotional regulation self-efficacy between emotional labor and task performance; 3) to construct and validate a theoretical model of the relationships among emotional labor, emotional regulation self-efficacy, and task performance; 4) to propose specific strategies and recommendations for managing emotional labor.

The findings indicate that emotional labor positively affects task performance and emphasize the significant mediating role of emotional regulation self-efficacy. This offers a new perspective for understanding the complex relationship between emotional labor, emotional regulation self-efficacy, and task performance and provides practical management strategies for enhancing employee performance. The discoveries of this study not only enrich the theoretical foundation in the field of emotional labor but also guide the management practices in grassroots banks. By effectively managing emotional labor, these institutions can improve employee task performance, optimize customer service experience, and enhance the performance of the banking business.

Keywords: Emotional Labor, Task Performance, Emotional Regulation, Self-Efficacy

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Introduction

Bank tellers, who directly interact with customers at the counters of bank branches, now find emotional labor an indispensable part of their work environment. Emotional labor involves managing and adjusting one's emotions to meet the demands of a professional role. This process significantly impacts an individual's task performance and the overall performance of the organization (Peifer et al., 2020). Despite the growing interest in emotional labor and its impact on task performance, research on its role and impact mechanisms among bank tellers remains relatively scarce. In particular, the mediating role of emotional regulation self-efficacy between emotional labor and task performance has not been thoroughly explored. Moreover, different types of emotional labor strategies may have varying impacts on work performance, and exploring these differences and their underlying mechanisms is crucial for optimizing employee performance (Downes et al., 2021).

Based on social cognitive theory, this study aims to fill this gap in the literature. Social cognitive theory (Bandura, 1986) emphasizes the interaction between cognition, environment, and behavior, particularly highlighting the central role of an individual's self-efficacy in their actions and performance. In the context of emotional labor, this theoretical framework helps us understand how individuals manage and adjust their emotional expressions to meet job demands, and how such adjustments and management, influenced by emotional self-efficacy, affect their job performance (Bandura, 1997).

By applying social cognitive theory to the study of emotional labor, this research explores the complexity and duality of emotional labor and its impact on task performance. Specifically, this study focuses on bank tellers in Handan City, exploring the relationship between emotional labor, emotional regulation self-efficacy, and task performance, and aims to empirically validate the mediating role of emotional regulation self-efficacy.

The goal of this study is to provide a comprehensive understanding of how emotional labor affects the task performance of bank tellers and how emotional regulation self-efficacy plays a mediating role in this process. Moreover, this study aims to offer theoretical guidance and practical strategies for bank management on the management of emotional labor and work performance, to optimize employees' emotional labor, enhance their task performance, and thereby improve customer service experience and the overall performance of the banking business. Through this research, we hope to enrich the theoretical foundation of the field of emotional labor and provide practical strategies for grassroots bank management.

Research Objectives

This study examines bank tellers in Handan City, Hebei Province, China, utilizing the social cognitive theory framework. It incorporates emotional regulation self-efficacy as a mediating variable to explore the management of emotional labor and proposes optimization strategies aimed at enhancing the task performance of bank tellers.

- 1. The research aims to systematically assess the direct impact of emotional labor on the task performance of bank tellers in Handan City and clarify the role of emotional labor in enhancing task performance.
- 2. It explores the mediating role of emotional regulation self-efficacy in the relationship between emotional labor and task performance, revealing how emotional regulation self-efficacy modulates the effect of emotional labor on performance.

- 3. A theoretical model encompassing the relationships among emotional labor, emotional regulation self-efficacy, and task performance is established and validated through empirical research.
- 4. Based on the findings, the study proposes specific management strategies and recommendations to optimize the management of emotional labor, thereby enhancing employee task performance.

Literature Review

Concept Definition Emotional Labor

In this study, emotional labor is defined as activities regulated by organizational emotional display rules, requiring emotional expression and regulatory control according to work contexts to accomplish job tasks or enhance work outcomes (Hochschild, 1979). In terms of the dimensions of emotional labor, this study adopts Grandey's classification of emotional labor into surface and deep-acting strategies (Grandey, 2000). Surface acting involves employees adjusting their outward expressions, such as facial expressions and tone, to align with the emotional rules set by the organization, without changing their actual feelings. Deep acting, on the other hand, refers to employees making an effort to adjust their inner thoughts and feelings, driven internally to display the attitudes and emotions required by the organization, thereby fulfilling the organizational emotional rules and promoting the completion of work objectives.

Task Performance

Prior to Borman and Motowidlo (1993) differentiating job performance into task performance and contextual performance, most research focused on the in-depth exploration of the connotation of task performance. In this study, task performance is refined as the efficiency and effectiveness with which an employee completes their job responsibilities within their designated role. This includes not only the execution of daily tasks but also the ability to solve complex problems. Such performance evaluation is directly connected to the employee's core responsibilities and can be accurately assessed through a series of quantitative indicators.

Emotional Regulation Self-Efficacy

Emotional regulation self-efficacy is a type of general self-efficacy, which Bandura elaborated on as an individual's subjective judgment, belief, or perception of their capability to accomplish a task or activity before engaging in it (Bandura, 1977). Caprara and Bandura (2003) introduced the theory of self-efficacy into the domain of self-regulation of emotions, defining it as emotional regulation self-efficacy (also referred to as "emotional self-efficacy"). Self-efficacy and emotion regulation are core components of the self-regulation system, with an interrelated relationship. This denotes that self-efficacy can be applied to regulate one's emotions, thereby influencing an individual's behavior and psychological state. This is the essence of emotional regulation self-efficacy. In explaining this concept, emphasis is placed on an individual's ability to effectively identify various emotions within themselves, and then on the confidence level in regulating and managing those emotions.

Theoretical Foundation

Social Cognitive Theory (SCT), proposed by Albert Bandura, highlights the interplay among individual cognition, environmental factors, and behavior, particularly emphasizing the central role of self-efficacy in this process (Bandura, 1986). According to this theory, an individual's behavior, such as emotional labor, is influenced not only by external environmental factors but also by internal cognitive factors, such as emotional regulation self-efficacy, emotional regulation self-efficacy, the belief in one's ability to manage and adjust emotions to cope with specific situations, serves as a key mediating variable linking emotional labor and task performance. Within this framework, emotional labor requires individuals to adjust their emotional expressions to meet job demands, and a high level of emotional regulation self-efficacy can enhance individuals' confidence and ability to meet these demands, there by directly affecting their task performance. Thus, Social Cognitive Theory provides a theoretical foundation for understanding the relationship between emotional labor, emotional regulation self-efficacy, and task performance, revealing the potential pathway to optimize emotional labor strategies and enhance task performance through improving emotional regulation self-efficacy.

Emotional Labor and Task Performance

In the contemporary workplace environment, the emotional labor process by which employees manage and adjust their emotions at work plays a significant role in their task performance. According to Social Cognitive Theory, the impact of emotional labor on task performance depends on how employees appraise and cope with situations related to emotional expression. Employees' emotional appraisals and coping strategies not only influence their emotional expressions but also indirectly affect the outcomes of their work tasks. Positive emotional appraisals and effective emotional coping strategies, such as emotion regulation and expression skills, can effectively help employees manage emotions, mitigate the negative effects of emotional labor, increase job satisfaction, and thereby enhance task performance. Conversely, negative emotional appraisals and inappropriate coping strategies can lead to excessive emotional expenditure, reduce work efficiency, and negatively impact task performance. Numerous studies have validated the close connection between emotional labor and task performance. Hwang and Park (2022) discovered that emotional labor has a dual role in task performance: deep acting enhances performance through sincere emotion management, while surface acting may cause emotional exhaustion due to a lack of authenticity, negatively affecting performance.

In summary, the role that emotional labor plays in the workplace is multifaceted and complex, with its impact on task performance varying according to different labor strategies. Deep acting generally helps to improve performance, while surface acting may have detrimental effects.

Based on the literature review and theoretical analysis above, this study proposes the following hypotheses:

H1a: Deep acting in emotional labor has a positive impact on task performance.

H1b: Surface acting in emotional labor has a negative impact on task performance.

Emotional Labor and Emotional Regulation Self-Efficacy

In the study of the impact of emotional labor on job performance, emotional regulation self-efficacy is considered a mediating variable, warranting hypotheses about the role of emotional self-efficacy in both pre-and post-model relationships. Emotional self-efficacy, a form of self-efficacy, represents an individual (employee) psychological resource, as detailed by Kuo et al. (2021).

The depletion of psychological resources can further exert a negative impact. The more frequently employees engage in surface acting, the more it depletes bank tellers' confidence in identifying and regulating their own emotions. Therefore, surface acting can have a negative impact on the emotional self-efficacy of bank tellers. Conversely, if employees adjust their inner experiences and cognitions to align their genuine internal feelings with external emotional expressions, they can gain a greater sense of accomplishment at work, thereby enhancing their psychological resources. Hence, the more bank tellers engage in deep acting, the increase in psychological resources can help them more effectively identify and regulate their emotions, resulting in stronger emotional regulation self-efficacy. Deep acting can have a positive impact on the emotional self-efficacy of bank tellers.

Based on the literature review and theoretical analysis above, this study proposes the following hypotheses:

H2a: Deep acting has a positive impact on emotional self-efficacy.

H2b: Surface acting has a negative impact on emotional self-efficacy.

Emotional Regulation Self-Efficacy and Task Performance

Within the framework of Social Cognitive Theory, self-efficacy is defined as an individual's confidence and belief in their capability to successfully accomplish tasks or work within a specific domain. This confidence not only influences an individual's motivational behavior but also significantly impacts their performance level. Individuals with high self-efficacy tend to set challenging goals for themselves, strive to overcome obstacles, and demonstrate enduring perseverance in the pursuit of success. They exhibit greater confidence when faced with work challenges and can effectively utilize their knowledge and skills to solve problems. This positive mindset and belief contribute to the enhancement of task performance, as individuals with high self-efficacy are more likely to fully leverage their potential and achieve better work outcomes. Peifer et al. (2020) found that self-efficacy has a significant positive impact on task performance, particularly noting that enhancing self-efficacy through positive feedback can improve both the quantity and quality of task performance. Downes et al. (2021) not only confirmed the positive correlation between self-efficacy and individual task performance and also used Social Cognitive Theory to explain this influence, demonstrating the relationship through a validated measurement model.

Based on the literature review and theoretical analysis above, this study proposes the following hypothesis:

H3: Emotional self-efficacy has a positive impact on job performance.

The Mediating Role of Emotional Regulation Self-Efficacy

Within the framework of Social Cognitive Theory, emotional self-efficacy plays a critical mediating role in the dynamic relationship between emotional labor and task performance. Emotional labor, defined as the process by which individuals manage and adjust their emotional expressions to meet the demands of their work roles, partially depends on their confidence in their ability to regulate emotions and emotional self-efficacy. The strength of this belief affects the quality and efficiency of emotional labor, which in turn impacts task performance. Thus, by enhancing emotional self-efficacy, emotional labor can be more effectively transformed into improved task performance, revealing an important psychological mechanism in the process of converting emotional management into work outcomes. This understanding offers a new perspective on deepening the comprehension of emotional labor and its impact on job performance,

highlighting the importance of cultivating and enhancing emotional self-efficacy in workplace emotional management strategies.

Based on the literature review and theoretical analysis above, this study proposes the following hypotheses:

H4a: Emotional self-efficacy mediates the relationship between deep acting and individual job performance.

H4b: Emotional self-efficacy mediates the relationship between surface acting in emotional labor and individual job task performance.

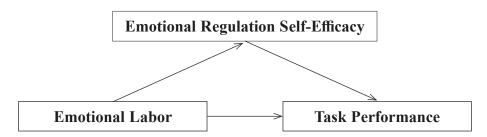


Figure 1 Theoretical Model Diagram

Methodology

This study selected bank tellers in Handan City, Hebei Province, China, as its subjects, with data collected primarily through online surveys in January 2024. A total of 462 questionnaires were received, of which 403 were deemed valid, resulting in a validity rate of 87.23%.

The independent variable in this research is emotional labor, the dependent variable is task performance, and the mediating variable is emotional self-efficacy. To ensure the reliability and validity of the measurement, the study revised scales based on those published in authoritative journals and frequently used in research, which have been validated for reliability and validity. To better adapt to the research context, the original scales were retranslated and adjusted as necessary. During the translation process, attention was paid to ensuring the accuracy of the translated content, and back-translation was employed to ensure consistency with the original text.

The emotional labor scale was adapted and translated based on the studies by Gandey (2003) and Diefendorff et al. (2005), as well as Wu (2003) analysis of emotional labor within the Chinese cultural context. The task performance scale was based on the preliminary research by Han et al. (2006), taking into account the scale development in task performance and contextual performance by Williams and Anderson (1991), Borman and Motowidlo (1993), and Befort and Hattrup (2003). The emotional self-efficacy scale referred to the design by Giunta et al. (2008).

In this study, SPSS 21 was used for a comprehensive analysis of the reliability and validity of the designed questionnaire. Subsequent analyses, including correlation analysis and regression analysis, were conducted to examine the variables and their effect, leading to the research conclusions.

Research Results

Overview of the Sample Population

In the sample, females outnumber males, comprising 68.37% of the participants. Regarding age distribution, individuals aged 36-45 years constitute the largest group, accounting for 33.25% of the total study sample. In terms of marital status, the majority of the sample is married, representing 65.27%. As for educational attainment, a significant portion, 76.27%, holds a bachelor's degree. Regarding tenure, those with 6-10 years of experience make up the largest segment, at 33.25%. These detailed demographic data provide a comprehensive understanding of the sample characteristics, offering a solid foundation for an in-depth exploration of the relationship between emotional labor and task performance.

Reliability and Validity Analysis

Reliability analysis was conducted using Cronbach's Alpha coefficient, with results indicating that all dimensions exceeded the standard threshold of 0.7. This demonstrates the high internal consistency of the questionnaire, ensuring the stability and reliability of the measurement tool when applied across different times and locations. Concurrently, validity testing further confirmed the construct validity of the questionnaire, guaranteeing its capability to accurately measure the concepts intended for exploration. Through comprehensive analysis of reliability and validity, the measurement tools utilized in this study have been validated, ensuring the reliability and effectiveness of the research findings.

Correlation Analysis

This study employed Pearson correlation coefficient analysis to examine the relationships among variables, providing preliminary insights. Significant correlations were found between the independent variable of emotional labor (encompassing both surface and deep acting), the mediating variable of emotional self-efficacy, and the dependent variable of task performance. Specifically, surface acting showed a significant negative correlation with both deep acting, emotional self-efficacy, and task performance; deep acting was significantly positively correlated with emotional self-efficacy and task performance; emotional self-efficacy was also significantly positively correlated with task performance. The evident association between deep acting and task performance, as well as emotional self-efficacy, alongside the clear relationship between emotional self-efficacy and task performance, lays the groundwork for further examination of the mediating role of emotional self-efficacy within the dynamics of emotional labor and task performance. The results of the task performance correlation analysis, which revealed significant relationships between task performance and emotional self-efficacy, surface acting, and deep acting, provide a basis for conducting regression analysis to explore the effects among the variables.

Main Effect and Mediation Effect Testing

The mediation analysis results for emotional self-efficacy reveal that in Model 1, the standardized regression coefficient for the independent variable of surface acting is -0.303, achieving significance, which indicates that surface acting has a significant negative impact on the dependent variable of task performance.

The standardized regression coefficient for the independent variable of deep acting is 0.288, reaching a significant level, suggesting that deep acting has a significant positive effect on task performance.

In Model 2, the standardized regression coefficient for the independent variable of surface acting is -0.239, reaching significance, indicating that surface acting has a significant negative impact on the mediating variable of emotional self-efficacy. The standardized regression coefficient for the independent variable of deep acting is 0.303, achieving significance, indicating that deep acting has a significant positive effect on emotional self-efficacy.

In Model 3, the mediating variable of emotional self-efficacy exhibits a standardized regression coefficient of 0.298, reaching significance, which proves that emotional self-efficacy has a noticeable positive impact on task performance.

Since both surface and deep acting have significant impacts on emotional self-efficacy, it can be concluded that emotional self-efficacy plays a significant mediating role in the relationship between surface acting, deep acting, and task performance, acting as a partial mediator in both cases.

Table 1 Mediation Analysis of the Impact of Emotional Labor on Task Performance

Variables		Model 1 Y1: Task Performance		Model 2 Y2: Emotional Self-Efficacy		Model 3 Y3: Task Performance	
		Beta	T	Beta	T	Beta	T
Control	Gender	-0.07	-1.132	0.103	1.583	-0.1	-1.705
Variables	Age	-0.013	-0.103	0.175	1.293	-0.065	-0.535
	Marital Status	0.115	1.735	-0.005	-0.071	0.117	1.847
	Education	0.007	0.122	0.062	0.96	-0.011	-0.19
	Tenure	0.256	2.033	-0.128	-0.956	0.294	2.448
Independent Variables	Sure face acting	-0.303***	-4.513	-0.239***	-3.352	-0.232***	-3.539
	Deep acting	0.288***	4.648	0.303***	4.623	0.197**	3.193
Mediating Variable	Emotional regulation self-efficacy	-	-	-	-	0.298***	4.782
	F	12.716***		8.034***		15.155***	
R ² Change inR ²		0	3	0.2	13	0.3	69
		0.276		0.186		0.345	

The hypothesis testing results of this study reveal that the two dimensions of emotional labor (deep acting and surface acting) among bank tellers indirectly influence task performance through emotional self-efficacy. Thus, the quantitative data analysis of this research leads to the following conclusions:

1. By examining bank employees' emotional labor from both deep and surface-acting perspectives, this study has demonstrated the significant impact of emotional labor on emotional self-efficacy and job performance. This addresses the existing research gap in the study of emotional labor within the bank teller domain.

2. Within the framework of Social Cognitive Theory, this study discussed the impact of bank tellers' emotional labor (deep and surface acting) on task performance. The empirical analysis confirmed that the theoretical hypotheses have been explicitly validated in the actual work context of bank tellers. This application of empirical analysis to theoretical hypotheses in the real-world setting of bank tellers provides a clear test and extends our understanding of how emotional labor influences performance in the banking sector.

Discussion

Based on Social Cognitive Theory and a mediation model of emotional regulation self-efficacy, this study constructs a theoretical model of the impact of bank employees' emotional labor on task performance, using quantitative data for hypothesis testing.

Dual Impact of Emotional Labor

This study, focusing on bank tellers in Handan City, treats emotional labor as a type of job demand, specifically examining the impact of bank tellers' deep and surface acting on emotional regulation self-efficacy. The analysis of survey data concludes that deep acting has a significant positive impact on emotional regulation self-efficacy and job performance, while surface acting has a significant negative impact on both. These findings provide empirical support for the relationship between the two dimensions of emotional labor and emotional regulation self-efficacy and between these dimensions and job performance. The results of the questionnaire survey align with the current situation of emotional labor among grassroots bank employees and its impact on emotional regulation self-efficacy and job performance.

The Role of the Mediating Variable: Emotional Regulation Self-Efficacy

The study examines the emotional labor performance of bank employees, testing the mediating role of emotional regulation self-efficacy between deep acting, surface acting, and job performance. Empirical analysis of survey data reveals a positive predictive relationship between emotional regulation self-efficacy and job performance. The results indicate that the mediating variable, emotional regulation self-efficacy, plays a partial mediating role between both dimensions of bank employees' emotional labor and job performance. Considering the characteristics of bank employees, deep and surface acting are significant manifestations of emotional labor, not only affecting work and impacting job performance but also indirectly influencing individual job performance through emotional regulation self-efficacy. The role of emotional regulation self-efficacy in the transmission between emotional labor and job performance also deserves managers' attention.

Conclusion

This study delves into the emotional labor of bank tellers in Handan city and its impact on task performance, with a particular focus on the role of emotional regulation self-efficacy in this process.

1. The research confirms that emotional labor significantly affects the task performance of bank employees. Deep acting positively impacts task performance by enhancing emotional regulation self-efficacy, whereas surface acting may have a potential negative effect.

- 2. The study reveals that emotional regulation self-efficacy plays an important mediating role between emotional labor and task performance. This outcome underscores the significance of emotional self-efficacy as a crucial link between emotional labor and task performance.
- 3. Through empirical analysis of the relationships among emotional labor, emotional regulation self-efficacy, and task performance, this study successfully constructs and validates a theoretical model, deepening our understanding of the interactions among these variables.
- 4. Based on the findings, the paper proposes strategies and recommendations for managing emotional labor. It suggests that banks should train, support, and motivate employees to engage in deep acting, thereby enhancing their emotional regulation self-efficacy and task performance.

In summary, this study not only expands the theoretical foundation of the impact of emotional labor on task performance but also provides practical guidance for managing emotional labor in banks and other service industries. Future research should further investigate the effects of different types of emotional labor strategies in various work environments and how to effectively implement these management strategies to enhance employee performance and customer satisfaction. While this study has made certain advancements, due to its cross-sectional research design and region-specific sample, the generalizability and applicability of its conclusions still need to be further validated in future studies.

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Factors Influencing the Acceptance and Usage of Food Delivery Applications by Consumers in Bangkok and the Bangkok Metropolitan Region

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Abstract

This research aims to investigate the factors influencing the acceptance and usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region. It also seeks to compare these factors using the modified Unified Theory of Acceptance and Use of Technology (UTAUT2), incorporating performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit as independent variables.

Data were gathered from 425 consumers in Bangkok and the Bangkok Metropolitan Region through survey questionnaires. Content validity was ensured through expert reviews, and measurement reliability was assessed using Cronbach's Alpha coefficient. Discriminant validity was evaluated using correlation coefficients and Analyze data to determine the relationships between variables using multiple regression analysis.

The research findings reveal that habit is the most influential factor impacting the acceptance and usage of food delivery applications by consumers, with a Beta coefficient of 0.701. This is followed by performance expectancy (Beta coefficient = 0.158), social influence (Beta coefficient = 0.103), and hedonic motivation (Beta coefficient = 0.096). Conversely, factors such as effort expectancy, facilitating conditions, and price value were found to have no significant impact on consumers' acceptance and usage of food delivery applications.

Keywords: Food Delivery Applications, Acceptance and Usage of Technology, UTAUT2

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Introduction

Since the COVID-19 pandemic, people across the world have significantly changed their behaviors and activities from the pre-pandemic era in various aspects. This includes a transformation in work patterns from traditional commuting to online work, a shift in education to online learning, and even daily routine activities towards more reliance on digital platforms. Consequently, technology has been increasingly playing a vital role in daily lives in all aspects, affecting people's behaviors. The COVID-19 situation has seemed to improve since some countries in Southeast Asia returned to normalcy and reopened borders for normal travel. Thailand started transitioning back to normalcy with the notification of the Ministry of Public Health on September 19, 2022 (Ministry of Public Health, 2022) that COVID-19 was classified as a communicable disease under surveillance. This important point returns people to normal lives. However, some organizations continue to implement measures that are similar to those during the outbreak. In summary, although the situation of the COVID-19 pandemic has transitioned towards normalcy, technology continues to play a significant role in various aspects of daily life, including the popularization of food delivery services, especially among new users in major cities in Thailand. According to the Year in Search Thailand 2020 report, which studied the searching of users on Google's platform, it found that although online food ordering has been growing since the pre-COVID-19 pandemic, the outbreak significantly boosted its popularity, particularly among new users in major cities of Thailand.

In 2023, the Creative Economy Agency (Public Organisation) released a report summarising global trends and emerging consumer behaviours of Thai Small and Medium-sized Enterprises (SMEs). The report stated that consumers across all generations have adapted and are using online platforms more frequently to facilitate their daily lives. Food delivery applications have become one of the popular choices that customers use to enhance their daily convenience. Additionally, the Kasikorn Research Center presented that the market trend of food delivery has increased since 2022 due to service providers who continuously boost their sales by running promotions. However, in 2024, the Kasikorn Research Center predicts a decrease in the number of food delivery orders from online applications due to a reduction in customers' needs. This is because consumers have returned to full-time work at offices and food prices in the applications have been increased (Kasikorn Research Center).

However, it is not important how the market trend of the food delivery service is. Ordering food online through applications on mobile devices is still in demand. As observed from the Kasikorn Research Center's assessment, it is projected that in the year 2024, the food delivery market in Thailand will reach an estimated value of 86 billion baht. Additionally, according to the report of Momentum Works from Singapore, titled 'Food Delivery Platforms in Southeast Asia' (Momentum Works, 2023), which demonstrated data and in-depth analysis of the food delivery business in six major markets in the region, it is evident that there have been key players and market shares in the food delivery platform service providers in Thailand since 2022 as follows: Grab Food at 51%, LINE MAN at 24%, Food Panda at 16%, Robinhood at 6%, and SHOPEE Food at 3%. In 2023, Momentum Works also reported that Grab Food maintained the top market share at 47%, followed by LINE MAN at 36%.

The COVID-19 pandemic led to a change in people's lifestyles, resulting in increased adaptation and the use of technology, making technology an indispensable part of daily life. One aspect of incorporating technology into daily life is the usage of food delivery platform service

providers, which have a market value in Thailand of more than 80 billion baht. As the information above and a few major players in food delivery platform service providers in Thailand, the researchers are, therefore, interested in exploring the factors that drive consumers to use food delivery applications. The anticipated benefits of this research include the ability to compare the factors influencing the acceptance and usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region. This finding can be valuable for organizations or interested parties seeking to improve their food delivery application services. The specific objectives of this research are as follows paragraph.

Research Objectives

This research utilizes factors from the modified Unified Theory of Acceptance and Use of Technology (UTAUT2) to investigate the factors influencing the acceptance and usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region. The objectives of the study are as follows:

- 1. To study the factors influencing the acceptance and usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region.
- 2. To compare these factors using the modified Unified Theory of Acceptance and Use of Technology (UTAUT2).

Literature Review

Theoretical

The modified Unified Theory of Acceptance and Use of Technology (UTAUT2) is a theory jointly developed (Venkatesh et al., 2012) by integrating eight behavior theories. These theories include the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Theory of Planned Behavior (TPB) (Ajzen, 1985), the Technology Acceptance Model (TAM) (Davis et al., 1989), the Model of PC Utilization (MPCU) (Thompson et al., 1991), The Diffusion of Innovation Theory (DOI) (Rogers, 1995), the Motivational Model (MM) (Vallerand, 1997), the Social Cognitive Theory (SCT) (Compeau & Higgins, 1995), and the combined TAM and TPB (C-TAM-TAB) (Taylor & Todd, 1995). This integration aims to improve the model's comprehensiveness and relevance, particularly in consumers' usage context. The further study revealed that the key factors influencing behavioral intention are Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, and Habit. Additionally, Gender, Age, and Experience Serve as Supplementary Variables. This can be summarized in the model depicted in Figure 1.

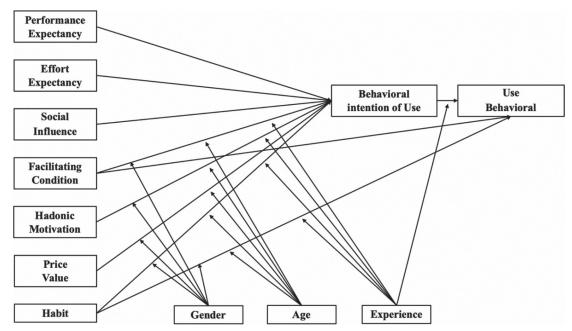


Figure 1 The Relationship Model of Factors in UTAUT2 (Venkatesh et al., 2012)

Performance Expectancy refers to the level at which individuals believe that using a system will help users gain rewards or benefits from their usage. Importantly, expectations of performance influenc the intention to use the system (Venkatesh et al., 2003).

Effort Expectancy refers to the level of convenience associated with using a system, which is crucial, especially in the initial stages of adopting new behaviors or activities. Expectations regarding effort exertion are significant both in the context of usage and in influencing intention to use the system (Venkatesh et al., 2003).

Social Influence refers to the level of perception at which individuals perceive the importance of others and believe that they should choose to use a particular system (Venkatesh et al., 2003).

Facilitating Condition refers to the level at which individuals believe that infrastructure and technical aspects of a system support its usage (Venkatesh et al., 2003).

Hedonic Motivation refers to the enjoyment or satisfaction derived from using technology (Venkatesh et al., 2012).

Price Value refers to the comparison of the value between the costs incurred in using technology and the benefits derived from using it (Venkatesh et al., 2012).

Habit refers to the tendency to exhibit automatic behavior patterns resulting from past learning experiences (Venkatesh et al., 2012).

Research

Research studies that employ factors from the UTAUT2 model to examine the acceptance and use of food delivery applications include the study on the "Determinants of continuous intention on food delivery apps" (Lee et al., 2019), "The study on the key determinants of continuance usage intention: An empirical study of mobile food delivery apps among Malaysians" (Yapp & Kataraian, 2022) and the study on "Consumers' Food Delivery Apps (FDAs)

continuance intention: An empirical investigation using the extended UTAUT2 model" along with data quality, time saving, and convenience factors (Mohammad & Sume, 2023). All studies found that factors from the UTAUT2 model influenced the use of food delivery applications. However, the specific factors that exhibited significant effects varied across the studies.

Furthermore, there are studies that have applied factors from the UTAUT2 model to examine the acceptance and use of other technologies, such as the trust factor as independent variables in studying the behavior and factors affecting dietary supplements purchasing decisions on the application Shopee for different generation: Gen X and Gen Y (Sombatcharoenmuang, 2021), the study on factors affecting electrical machines purchasing intention on online marketplaces (Inthrachom, 2022), the user acceptance of Autonomous Public transport Systems (APS): Extended UTAUT2 (Korkmaz et al., 2022), the factors influencing intention to use Mobility as a Service (MaaS) in Bangkok (Pakpisutkul, 2022) and the study examining the factors affecting teachers' use of digital learning resources with UTAUT2 (Avci, 2022). The findings indicate that the UTAUT2 factors employed in these studies influenced the use of the aforementioned technologies. However, the specific factors affecting technology use varied across studies, depending on the particular research context.

Conceptual Framework

From the study of relevant theories, it was found that various factors influencing the acceptance and use of technology according to the UTAUT2 theory can be used to explain the acceptance and usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region. However, some factors do not influence the acceptance and usage of food delivery applications. Therefore, the researcher has excluded age, gender, and experience from the study (Pakpisutkul, 2022). As a result, the conceptual framework can be illustrated as shown in Figure 2.

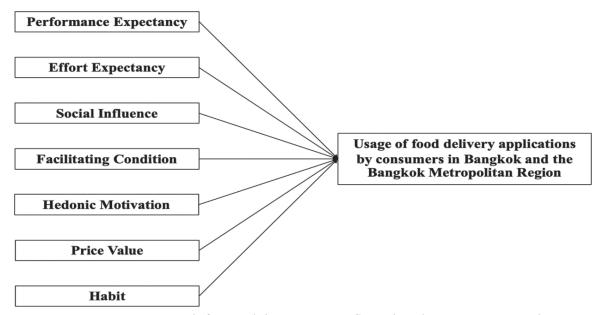


Figure 2 Framework for Studying Factors Influencing the Acceptance and Usage of Food Delivery Applications by Consumers in Bangkok and the Bangkok Metropolitan Region, Adapted from UTAUT2 Theory (Venkatesh et al., 2012).

Research Hypothesis: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Hedonic Motivation, Price Value and Habit have relationships to the usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region.

Methodology

This research is a quantitative study, conducted by survey research methodology. The data was collected through questionnaires.

The Population and Sample Size comprise the consumers in Bangkok and the Bangkok Metropolitan Region who have previously used food delivery applications. As this is a survey research with a known total population, the researcher employed Taro Yamane's formula (Yamane, 1973) to determine the sample size.

To represent the population size of Bangkok and the Bangkok Metropolitan Region (more than 100,000 people) in the formula to calculate the sample size according to Taro Yamane's formula with a 95% confidence level (e = 5%), the researchers needed to use a sample group size of 400 people to prevent errors in data collection or unusable data. This research has a sample size of 425 people.

Research Instrument

This research is quantitative research, which uses an online questionnaire to collect data in accordance with the research objectives. The questionnaire structure consists of three parts. Part 1 includes screening questions to verify if respondents have previously used food delivery applications in Bangkok and the Bangkok Metropolitan Region. Part 2 comprises personal data questions including gender, age, education level, occupation, and monthly income. Questions in Part 2 are closed-ended questions using nominal and ordinal measures. Part 3 consists of questions related to factors that influenc consumer acceptance and the usage of food delivery applications in Bangkok and the Bangkok Metropolitan Region. The questionnaire in Part 3 involves a rating scale with 29 items, categorized as an interval scale by dividing the measurement into 5 levels (Five-Point Likert Scales).

Data Collection

The researcher conducted quantitative data collection through survey research, gathering primary data directly from the population and sample groups with closed-ended questions. This was processed through an online platform (Google Forms). Additionally, secondary data was collected through a literature review, including theories, documents, and related articles, to provide foundational information for the research.

Data Analysis and Statistics Used in the Research

Data analysis was conducted by statistical software to analyze the data collected from the questionnaire. Part 1 consisted of screening questions, and Part 2 involved analysing demographic data with descriptive statistics such as frequency distribution, mean, and percentage. Part 3 involved questions related to factors that influenc consumer acceptance and the usage of food delivery applications in Bangkok and the Bangkok Metropolitan Region, analyzed with multiple regression analysis. The study compared and analyzed the factors influenc consumer acceptance and the usage of food delivery applications in Bangkok and the Bangkok Metropolitan Region.

Research Results

From the study of demographic data and usage of food delivery applications among the sample group, including gender, age, education level, occupation, and monthly income, the data can be summarized in numbers and percentages for the sample group, as shown in Table 1.

Table 1 Descriptive Analysis of Respondent Demographic

Demographic	Frequency	Percentage (%)
Gender		
Male	199	46.824
Female	211	49.647
Not specified	15	3.529
Total	425	100
Age		
59 Years or Older (Born Before 1965)	100	23.529
44-59 Years (1965-1980)	109	25.647
29-43 Years (1981-1995)	116	27.294
13-28 Years (1996-2011)	100	23.529
Total	425	100
Education Background		
Undergraduates	99	23.294
Graduate	248	58.353
Postgraduate	78	18.353
Total	425	100
Gender		
Male	199	46.824
Female	211	49.647
Not Specified	15	3.529
Total	425	100
Age		
59 Years or Older (Born Before 1965)	100	23.529
44-59 Years (1965-1980)	109	25.647
29-43 Years (1981-1995)	116	27.294
13-28 Years (1996-2011)	100	23.529
Total	425	100

 Table 1 Descriptive Analysis of Respondent Demographic (Con.)

Demographic	Frequency	Percentage (%)
Education Background		
Undergraduates	99	23.294
Graduate	248	58.353
Postgraduate	78	18.353
Total	425	100
Occupation		
Government Official	90	21.176
Employees of State Enterprises	37	8.706
Company Employees	115	27.059
Business Owner	53	12.471
Employed	9	2.118
Students	49	11.529
Retired/Unemployed	65	15.294
Others	7	1.647
Total	425	100
Income		
Under 10,000 Baht	19	4.471
10,001-25,000 Baht	102	24.000
25,001-50,000 Baht	139	32.706
50,001-65,000 Baht	120	28.235
65,001-80,000 Baht	30	7.059
80,001 Baht or Above	15	3.529
Total	425	100

An observation from data collection is that respondents aged 59 and above were already users of food delivery applications. This is attributed to the use of an online questionnaire for data collection, which included a screening question to ensure that only individuals with actual experience using food delivery applications participated in the study.

Analysis of the data from the sample group, who responded to 29 questionnaire items pertaining to the research factors, revealed that the majority of respondents agreed with these factors. The mean score was 4.034 with a Standard Deviation (SD) of 0.858.

Content Validity

To ensure the accuracy and reliability of the questionnaire used in hypothesis testing, the researcher presented the questionnaire to experts to verify its content validity, i.e., the consistency between the questionnaire items and the defined concepts. The questionnaire was then revised based on the experts' suggestions.

Scale Reliability Test

The researchers used part 3 of the questionnaire, which contains questions related to factors that affect consumer acceptance and the usage of food delivery applications in Bangkok and the Bangkok Metropolitan Region in order to test the reliability of the measures. This was conducted to assess the reliability and accuracy of the questionnaire's questions. The statistical value used for this test is Cronbach's Alpha, and the results of the reliability test of the measures are shown in Table 2.

Table 2 Cronbach's Alpha Coefficient Value of the Measures (N = 425)

Variable	No. of Item	Cronbach's Alpha (α)
Performance Expectancy (PE)	4	0.746
Effort Expectancy (EE)	4	0.875
Social Influence (SI)	4	0.834
Facilitating Condition (FC)	4	0.719
Hedonic Motivation (HM)	4	0.893
Price Value (PV)	3	0.841
Habit (HB)	3	0.822
Use Behavior (UB)	3	0.916

The Cronbach's Alpha coefficient of the measure ranges from 0.719 to 0.916, indicating that no variable has an alpha coefficient lower than 0.7 (Nunnally, 1978). This suggests that all items in the questionnaire have passed the quality testing of the instrument, hence these items are considered reliable and acceptable.

Discriminant Validity by Correlation Coefficient

Analyzing correlation coefficients to study the relationship between variables with the values obtained from statistical software testing reveals that the correlation coefficients for each variable pair range between -0.026 and 0.659. This indicates that there is no high linear relationship between the variable pairs, as shown in Table 3, consistent with Hair et al. (2019). It has been found that when a variable pair has a correlation coefficient equal to or greater than 0.80, there may be issues such as high linear relationships among independent variables or multicollinearity problems in the linear model.

Table 3 Correlation Analysis

Independent Variables	PE	EE	SI	FC	HM	PV	HB
PE	1.000						
EE	0.624	1.000					
SI	0.183	-0.002	1.000				
FC	0.572	0.643	0.009	1.000			
HM	0.403	0.170	0.587	0.253	1.000		
PV	0.89	0.222	0.469	0.270	0.659	1.000	
НВ	0.534	0.370	0.203	0.411	0.546	0.560	1.000

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Multiple Regression Analysis

From collecting data via a screened questionnaire with a total sample size of 425, the researchers conducted multiple regression analyses to test the research hypotheses. The results of hypothesis testing at a statistically significant level of 0.05 are shown in Table 4.

Table 4 Statistic Used to Assess the Adequacy of the Multiple Regression Equation of Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	0.872	0.760	0.756	0.4986	

From Table 4, the Adjusted R-Square value of 0.756 indicates that the independent variables can partially explain the dependent variable or can explain the expectations regarding Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, and Habit. These variables have a relationship with the usage of food delivery applications by consumers in Bangkok metropolitan and suburban areas, accounting for 75.6% (based on the guideline that R-Square > 0.5 is considered very good).

Based on the overall hypotheses, the researchers summarized the results from the analysis of variance (ANOVA) as shown in Table 5.

Table 5 Variance Analysis Results

Model	Analysis	Sum of Square	df	Mean Square	F	Sig.
1	Regression	329.125	7	47.081	189.131	0.000^{*}
	Residual	103.666	417	0.249	-	-
	Total	432.791	424	-	-	-

Source: *Statistically significant at the level of 0.05

From Table 5, it is found that P-value of the regression is 0.000, which is less than 0.05, leading to the rejection of H_0 and acceptance of H_1 . This can be explained as follows: At least one independent variable has a statistically significant relationship with the dependent variable at the 0.05 level.

After establishing the hypotheses regarding the relationship between variables, the researchers proceeded to test these hypotheses against the regression coefficients obtained from the analysis using statistical software, specifically through Multiple Regression Analysis, as shown in Table 6.

Table 6 Regression Coefficient of Independent Variables

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
variables	В	Std. Error	Beta			
(Constant)	-1.036	0.261	-	-3.968	0.000^{*}	-
Performance	0.281	0.065	0.158	4.353	0.000^{*}	2.299
Expectancy (PE)						
Effort Expectancy (EE)	0.017	0.060	0.010	0.275	0.784	2.106
Social Influence (SI)	0.157	0.047	0.103	3.309	0.001^{*}	1.674
Facilitating	0.107	0.064	0.055	1.656	0.098	1.924
Condition (FC)						
Hedonic Motivation (HM)	0.129	0.051	0.096	2.514	0.011^{*}	2.473
Price Value (PV)	0.016	0.045	0.012	0.349	0.727	2.179
Habit (HB)	0.832	0.039	0.701	21.129	0.000^{*}	1.914

Source: *Statistically significant at the level of 0.05

From Table 6, the VIF values are between 1.914 and 2.473, which are not higher than 10. This means none of the independent variables has the problems of multicollinearity or selfcorrelation (Cooper & Schindler, 2014). Moreover, from the observing statistically significant results at the 0.5 level of significance, with regression coefficients arranged from highest to lowest, it is found that the variables that influence the usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region, with a P-value less than 0.05, are as follows: 1) Habit (HB) has a positive regression coefficient of 0.701, meaning that a one-unit increase in habit will increase the usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region by 0.701. 2) Performance Expectancy (PE) has a positive regression coefficient of 0.158, meaning that a one-unit increase in performance expectancy will increase the usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region by 0.158. 3) Social Influence (SI) has a positive regression coefficient of 0.103, meaning that a one-unit increase in social influence will increase the usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region by 0.103. Additionally, 4) Hedonic Motivation (HM) has a positive regression coefficient of 0.096, meaning that a one-unit increase in hedonic motivation will increase the usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region by 0.096. These relationships can be expressed in predictive equations as follows:

$$Y = -1.036 + 0.281(PE) + (EE) + 0.157(SI) + (FC) + 0.129(HM) + (PV) + 0.832(HB)$$

Discussion and Conclusion

Most of the sample group consists of females aged between 29 and 43 years old (born between 1981 and 1995), or Generation Y, which is not significantly different from other age groups. They mostly hold bachelor's degrees, with professions predominantly as corporate employees and government officials. Their monthly income ranges from 25,001 to 50,000 Baht and 50,001 to 65,000 Baht.

Based on the analysis according to the hypotheses, it was found that the most influential factor in the acceptance and usage of food delivery applications among consumers in Bangkok and the Bangkok Metropolitan Region is the habit factor ($\beta = 0.701$). Following this is the performance expectancy factor ($\beta = 0.158$), the social influence factor ($\beta = 0.103$), and the hedonic motivation factor ($\beta = 0.096$), respectively. The factors influencing the acceptance and usage of food delivery applications were consistent with the studies of Sombatcharoenmuang (2021), Inthrachom S. (2022), Korkmaz et al. (2022), and Avci (2022). Meanwhile, the effort expectancy factor, the facilitating conditions factor, and the price value factor did not significantly impact the acceptance and usage of food delivery applications among consumers in Bangkok and the Bangkok Metropolitan Region. which was consistent with the studies of Korkmaz et al. (2022), Pakpisutkul (2022), and Yapp and Kataraian (2022).

Recommendations

Recommendation for Organizations

The study findings indicate that the factors that influence the acceptance and usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region, in order of importance: habit as the primary factor, performance expectancy as the secondary factor, followed by social influence and hedonic motivation as the third and fourth most influential factors, respectively. Based on these results, the following recommendations can be made for organizations or companies seeking to utilize this information to adjust their operational strategies:

- 1. Emphasize building trust and habit formation by creating positive and reliable user experiences. Focus on convenience, safety, and satisfactory interactions to establish confidence and increase the likelihood of repeat usage.
- 2. Enhance performance expectancy by improving the application's efficiency, such as reducing delivery times and upgrading system quality. These improvements aim to elevate user expectations and satisfaction with the service.
- 3. Foster engagement and social influence by utilizing compelling social media strategies and promotional campaigns. These efforts aim to enhance user engagement and motivation for continued application usage.
- 4. Developing hedonic motivation by enhancing enjoyable and interesting experiences through the addition of engaging features and providing a user-preferred experience.
- 5. Examine other factors such as usability, facilitating conditions, and price value to identify ways to appropriately enhance their impact on the acceptance and usage of the application.

Recommendation for Future Research

This Research on factors that influence the acceptance and usage of food delivery applications by consumers in Bangkok and the Bangkok Metropolitan Region reflects consumer opinions at the time of research. To ensure more comprehensive and beneficial future studies, researchers should consider the following aspects:

- 1. Examine the relationship between demographic characteristics and usage behavior by analyzing the correlation between demographic factors such as gender, age, education level, and income, and application usage patterns. This analysis aims to understand how different user groups vary in their behavior.
- 2. Consider factors that may influence the use of food delivery applications, including Economic factors, such as pricing and promotions, Technological factors, such as ease of use and Social factors, such as information sharing and reviews. Additionally, examine other factors that may affect acceptance and usage, such as security and privacy concerns.

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Impacts of Key Opinion Consumers on Customer Purchase Intention: A Study of Social Commerce Platforms in China

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Abstract

This study explores the pivotal role of Key Opinion Consumers (KOC) in influencing purchase intention among social commerce customers in China, with a focus on Xiaohongshu users in Shanghai. A survey of 599 Shanghai residents revealed key findings: Firstly, KOCs directly enhance purchase intention. They serve as influential figures whose endorsements positively impact consumer decisions to make purchases on social commerce platforms. Secondly, perceived risk negatively affects both purchase intention and customer trust. Consumers' concerns about risks associated with social commerce transactions can deter their willingness to purchase and erode their trust in the platform. Thirdly, customer trust plays a crucial role in bolstering purchase intention. When consumers trust KOCs and the platforms they endorse, they are more inclined to purchase despite perceived risks. Additionally, the study reveals that KOCs indirectly influence purchase intention through their effects on perceived risk and customer trust. This indirect influence underscores the complex pathways through which KOCs shape consumer behavior in social commerce settings. Moreover, customer trust is a moderator, mitigating the negative impact of perceived risk on purchase intention. Higher levels of trust can alleviate consumer apprehensions, thereby fostering a more favorable environment for purchasing. These findings contribute to a deeper understanding of how KOCs promote purchase intention in social commerce contexts, highlighting the importance of managing perceived risks and fostering customer trust. The insights from this research offer valuable guidance for developing effective marketing strategies tailored to enhance consumer engagement and drive sales in social commerce platforms, particularly within the dynamic market landscape of China.

Keywords: Key Opinion Consumers, Purchase Intention, Perceived Risk, Customer Trust, Social Commerce

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Introduction

E-commerce has significantly altered people's lives, and online shopping has emerged as one of the most important avenues for modern netizens to purchase (Rigdon, 2023). As of June 2023, China had 1.079 billion Internet users, with 884 million engaging in online commerce, an increase of 38.8 million since December 2022, according to the 52nd Statistical Report on China's Internet Development produced by CNNIC (2023). The volume of e-commerce transactions in China has also risen (Fan, 2021). With fierce competition, e-commerce businesses need innovations to attract new customers constantly.

Social commerce has recently emerged as an innovative product of social media and e-commerce (Abdelsalam et al., 2020; Meilatinova, 2021). It refers to the use of social media by suppliers and consumers during e-commerce (Jami Pour et al., 2022; Jiang et al., 2021). Social commerce offers a richer social, collaborative, and interactive online shopping experience than traditional e-commerce (Duan et al., 2019; Jamil et al., 2022). Xiaohongshu is currently one of China's most popular social commerce platforms, with over 300 million registered users (Qin et al., 2024; Wang et al., 2023). It has a sizable user base and substantial purchasing power, allowing it to influence consumers' decisions (Brizzo, 2024). Even though it faces substantial competition from other social media and e-commerce platforms in China, including WeChat, TikTok, and Taobao, Xiaohongshu has gained popularity for its user-generated content model, fostering trust among users seeking authentic recommendations (Chinafy, 2023; Liu, 2023).

Social commerce platforms require innovative marketing strategies; key opinion leaders, or KOLs, are among the most widely used e-commerce marketing strategies. Celebrities, well-known athletes, and supermodels were examples of KOLs-trusted, well-respected people with real experience and competence in a particular sector who had the power to influence others' beliefs and behaviors (Nguyen et al., 2023; Ratasuk, 2019; Wang et al., 2020). However, many customers are skeptical about KOLs' authenticity and that their reviews may have been manipulated and paid for (SEO, 2020). As a result, a new marketing strategy called Key Opinion Consumer (KOC) has emerged and become increasingly popular (GMAdmin, 2022). Key opinion consumers (KOCs), in contrast to Key Opinion Leaders (KOLs) who are often esteemed experts or celebrities, are everyday individuals who wield considerable influence over others' purchasing decisions by authentically sharing opinions and recommendations on online platforms. KOCs prioritize personal experiences with products and services, highlighting real-life usage scenarios and genuine emotional responses, which effectively cultivates trust among their audience and aids in making well-informed purchasing decisions (Lim, 2022; Wei et al., 2024). Thus, online marketplaces and enterprises need to be aware of and comprehend Key Opinion Consumers' (KOCs) effects on purchase intention in social commerce.

This study aims to forecast the impact of Key Opinion Consumers (KOCs) on enhancing the buying inclination of Xiaohongshu consumers in Shanghai, China. It also examines the intermediary functions of perceived risk and customer trust according to social capital theory. Even though the literature on KOC already exists in Chinese literature, it is very limited in English literature and requires further investigation (Le, 2022; Nunes et al., 2018). This research model that KOC is mainly investigated as a direct predictor of purchase intention and indirectly through perceived risk and customer trust, which has not been done.

This study is expected to provide new significant insights into the online marketing literature, with particular emphasis on the role of KOC, which is very limited, in cultivating

customer trust, promoting purchase intention, and reducing perceived risk. At the same time, the research results will also provide suggestions for business practices of social commerce and Internet companies.

Research Objectives

- 1. To examine the influence of KOC on customers' purchase intentions in social commerce.
- 2. Investigate how KOC enhances customers' inclination to buy in social commerce by considering the mediating effects of perceived risk and customer trust, using the social capital theory as a basis.
- 3. To establish effective strategies for enhancing client buy intent in e-commerce enterprises, specifically in social commerce within China.

Literature Review

Social Capital Theory

The degree of trust and reciprocity between communities or individuals can be used to gauge the applicability of this theory, which is based on social exchange theory (Putnam, 2000). According to Häuberer (2011), social capital was seen as amassing resources from various personal relationships. It was defined as the links and networks between people who lived or worked together in a particular society. Social capital theory has explained numerous events in various academic fields, including sociology, political science, education, and management (Dubos, 2017; Ratasuk, 2023b). Social media platforms have the most potential as research platforms. One common issue in this kind of research was whether using social media influences people's perceptions of self-social capital and their social support networks (Domahidi, 2018). For example, according to research by Kasim et al. (2022), utilizing social media at work can predict social capital, which includes network connections, shared vision, and trust. Social capital affects job engagement and the relationship between innovative work performance. Warren et al. (2015) examined social capital's structural, relational, and cognitive aspects. Their findings indicated that it had a favorable effect on online citizens' conduct in Facebook's public virtual community.

Purchase Intention

Purchase intention was the premeditated actions of a buyer willing to buy a thing (Belch & Belch, 2009). It refers to a person's intention to perform a purchase behavior or the motivation to purchase (Gelbrich et al., 2023). Consumers would assess the entire product or service during the online shopping process to generate positive or negative feedback, and consumer feedback would affect all examples of online transactions (Chen et al., 2022). Numerous authors have shown how customer views affect consumers' purchase intentions (Ohk & Kim, 2018; Tien et al., 2019; Yusuf & Busalim, 2018). For example, TikTok user-generated content influenced skincare brands' purchasing intentions (Halim & Candraningrum, 2021). Intentions were essential because they significantly predicted actual action (Balau, 2018). Therefore, their research was essential to any online retailer's success.

Key Opinion Consumer

Key Opinion Consumers (KOCs) are customers who influence their friends, followers, and readers to make similar purchasing decisions based on their opinions and feelings about

brand item (Zhou, 2023). KOC has emerged due to businesses' desire to leverage familiarity economies and viral marketing to quickly promote products, encouraging consumers' purchases on social media and generating revenue for businesses (He et al., 2019). KOC had the ability to transform public domain traffic into private domain traffic, leading to increased consumer purchases (Shen & Wang, 2019). This is because Customers' prominent opinions can shift (Özbölük & Akdoğan, 2022). For example, Park et al. (2021) believed that consumers associated more with key opinion consumers because they were likable and generally seen as truthful. Customers often perceive reviews and other subjective information as more reliable and trustworthy than traditional sources, significantly influencing their purchase decisions (Macheka et al., 2023).

Key opinion customers have the following characteristics: expertise, trustworthiness, homogeneity, and tie strength.

Expertise

McCracken (1989) defined expertise as "the perceived capability of the source to offer valid statements". In the current era of the information explosion, consumers frequently have high expectations for online reviews, especially from reliable sources, which could lead them to believe that their information is accurate (Filieri et al., 2018; Wiedmann & Von Mettenheim, 2020). Additionally, people were more likely to agree with evaluation experts' opinions than non-experts' (Bannor & Aryee, 2022). Therefore, customers prefer reviews from KOCs with evident expertise. For example, Wang and Scheinbaum (2018) showed how an endorser is an ability that directly determines the degree of belief in convincing shoppers' talent influences how much of a belief consumers have in persuading them to buy any product they promote. Expertise is defined in various ways; it is context-specific and pertains to knowledge and experience in a particular field (Döringer, 2021).

Trustworthiness

Verma and Dewani (2021) state that trustworthiness is confidence in information's objectivity, honesty, and validity. Majeed (2021) argued that trustworthiness measured how much the audience believed the speaker's claims to be true. For example, customers were overwhelmed by the volume of product information and options they found while doing product searches, and customer engagement required trustworthiness (Santini et al., 2020). KOC would increase customer trust, give customers more reasons to make decisions and enhance decision-making by offering reliable extra information, evaluations, and tailored guidance (Tian & Li, 2022). Trustworthiness increases customer purchase intentions and positively influences endorsed reliability (Martiningsih & Setyawan, 2022).

Homogeneity

Homogeneity mainly refers to the proximity between consumers and key opinion consumers regarding personal style, product interest, consumption values, and concepts (Chen, 2022). When two homogeneous parties shared product information more frequently, people perceived the other party's interests and pastimes as similar. There were fewer obstacles to communication, and it was more comfortable and more accessible (Xu & Wang, 2018). For example, Hoang et al. (2023) discovered that similarity influences whether a person seeking information accepts the assertions, judgments, and evaluations made by the source as applicable to their circumstances. Customers considered if the KOC would utilize the product as intended (O'Reilly et al., 2016). In conclusion, the resemblance between KOC and customer usage will impact customers' views and assessments.

Tie Strength

The strength of a tie is influenced by the duration of time spent, emotional depth, level of closeness, and the exchange of services that characterize the relationship (Granovetter, 1973). Liu (2020) pointed out a strong relationship between key opinion consumers and consumers, manifested in intensive interaction and emotional resonance, significantly impacting purchase decisions. Strong relationships may be shown in the fact that similar to genuine relationships, the more frequently people in a community communicate with one another, the deeper their affection is for one another. Conversely, it is referred to as a weak relationship (Yuan & Lou, 2020). For example, social interaction is a viewer's actions exposed to TikTok content, including advertisements. Regardless of location or time, it enabled successful communication while watching (Chittawarakun & Phimcharoen, 2022).

The Difference between KOC and KOL

Opinion leader marketing was a tactic that leveraged the sway of influential people to affect consumers' perceptions of a brand and their buying decisions (Suratepin & Funk, 2022). They were typically regarded as authoritative experts in each sector, with their professional expertise and sizable fan following (He & Jin, 2022). Using Kols' extensive reach to boost sales and raise brand awareness was a common strategy used by successful brands (Acikgoz & Burnaz, 2021). Interest transactions between merchants and KOLs were an inevitable part of KOL marketing, and they could compromise the impartiality and objectivity of KOL marketing materials (Zhang, 2023). The content released by KOC is often based on life and personal experience, which is more engaging. KOL attracts public domain traffic, while KOC captures private domain traffic (Gu, 2019). The relationship between merchants and consumers will continue to be customer-oriented, and the concept of being consumer-oriented will become increasingly popular (Tao et al., 2022).

Perceived Risk

Customer-perceived risk is the anticipation of potential losses and negative consequences associated with buying a product or service (Ariffin et al., 2018). Users consider perceived risk while accepting online reviews on social media. Consumers' actions and choices are influenced by their opinions about the worth of products and services (Chen et al., 2022). It represented uncertainty about the future, directly affecting consumers' purchase intention (Wei et al., 2018). For example, Casidy and Wymer (2016) discovered that consumers perceived high-risk scenarios when confronted with unfavorable or unstable circumstances. Consumer attitudes and behaviors were significantly influenced by perceived risk in online reviews (Yadav et al., 2023).

Customer Trust

Trust refers to a person's optimistic outlook on life or belief that others will carry out their responsibilities (Ratasuk & Charoensukmongkol, 2019). Trust has also been applied in business contexts, particularly the trust of customers in businesses, particularly for online actions that require trust (Davis et al., 2021; Ratasuk & Gajesanand, 2023). For example, Hu and Zhu (2022) discovered that users' intentions to shop online can be influenced by their confidence level in electronic media. One major challenge facing e-commerce in emerging economies is the low level of consumer trust in websites caused by information asymmetry (Mainardes et al., 2019). Therefore, trust was more crucial since it aided customers in overcoming their sense of danger (Sharma et al., 2017). Ratasuk and Gajesanand (2022) added customer trust as a mechanism

allowing food safety to promote customer repurchase intentions in Bangkok food delivery during COVID-19. Ratasuk (2023a) also examined the role of consumer trust in linking food hygiene to customer purchase intentions among Bangkok Street food customers.

Hypothesis Development

Based on social capital theory, which posits that relationships and exchanges within social networks foster trust that can create business values (Fussell et al., 2006; Kim et al., 2020), the positive perceptions and attitudes consumers hold toward Key Opinion Consumers (KOCs) are expected to enhance confidence and trust in products and services, ensuring they meet expectations for quality and satisfaction (Phan & Nguyen, 2024). For instance, Zhou (2023) emphasizes that a defining characteristic of effective KOCs is their ability to cultivate customer trust, particularly within the social commerce sector, aligning with Hoang et al. (2023), who asserts that consumer perceptions of KOCs significantly influence trust and thereby enhance customer engagement in Ho Chi Minh City, Vietnam. Moreover, KOC recommendations are known to mitigate perceived risks associated with purchasing decisions (Ilhamalimy & Ali, 2021; Xie et al., 2017). Conversely, negative perceptions of KOCs can heighten perceived risks among online shoppers, as Zhou (2023) and Wydymus (2023) revealed. When products and services endorsed by KOCs are perceived as low risk, consumer trust is bolstered, stimulating purchasing intentions (GMAdmin, 2022; Lim, 2022; Zhao et al., 2019). Further research by Ratasuk (2023a) underscores that perceived risk and customer trust serve as critical mechanisms influencing the purchase intentions of street food in Bangkok, with lower perceived risks regarding food safety contributing to increased trust and repurchase intentions as found by Ratasuk and Gajesanand (2022). Therefore, KOCs act as opinion leaders who wield significant social influence and disseminate information across their networks, reducing perceived risks and enhancing confidence in recommended products, ultimately stimulating purchase intentions (Bhandari & Rodgers, 2018; Farivar et al., 2017). Notably, Hoang et al. (2023) highlight that compared to Key Opinion Leaders (KOLs), KOCs are particularly effective in promoting consumer purchase intentions by fostering customer trust. Thus, social capital theory elucidates how KOCs influence purchase intentions by elucidating the interplay of perceived risk and customer trust within social networks (Park et al., 2019; Silva et al., 2019). This theoretical framework underpins the development of nine hypotheses, as outlined in Table 1.

Table 1 Summary of Hypothesis

Hypothesis

- H1 KOC has a positive impact on purchase intention.
- H2 KOC has a negative influence on perceived risk.
- H3 KOC has a positive impact on customer trust.
- H4 Perceived risk negatively affects purchase intention.
- H5 Perceived risk negatively influences customer trust.
- H6 Customer trust positively impacts purchase intention.
- H7 Perceived risk positively mediates the positive relationship between KOC and purchase intention.
- H8 Customer trust positively mediates the positive relationship between KOC and purchase intention.
- H9 Customer trust negatively mediates the negative relationship between perceived risk and purchase intention.

Methodology

This study investigates the effects of KOCs on customer purchase intention and the mechanism between them via perceived risk and customer trust in the Chinese social commerce setting. The following are the details of how the study will proceed.

Sample and Data Collection Procedure

Shanghai was chosen for its large and diverse population, economic significance, technological adoption, and cultural diversity, making it an ideal location to study consumer behavior related to platforms like Xiaohongshu (Lian et al., 2021; Sun & Ly, 2023). Shanghai is divided into three main parts, with 24.87 million people. Even though 16.62 million individuals in Shanghai were between the ages of 15 and 59, there was no proof that everyone who lived there was a customer of Xiaohongshu (Statistics, 2021). Therefore, stratified random sampling was used to ensure that the sample represents the entire city rather than being biased toward certain areas (Iliyasu & Etikan, 2021). A sample of 200 customers of Xiaohongshu who are 18 years old and older from each part of the city. With all three parts, a total of 600 respondents were initially approached to guarantee the sufficiency of the final data, which was considered adequate at a 95% confidence interval (Serdar et al., 2021). The sample size in this study was adequate to account for unforeseen circumstances (Ahmad & Halim, 2017). Quantitative research was conducted using self-administered questionnaires. Before distributing the questionnaires, the respondents were informed about their anonymity and rights to leave the study anytime.

Measurements

All question sets assessing latent variables were derived from prior research. They have been demonstrated to be valid and dependable. A five-point Likert scale was used to assess each question item, ranging from strongly disagree to strongly agree.

KOC is measured from the perspective of the four characteristics of Expertise, Trustworthiness, Homogeneity, and Tie Strength using scales adapted from Nguyen et al. (2023), Xu & Wang (2018), and Xiao et al. (2018). Each characteristic consists of 5 items measuring consumers' awareness of KOC.

Perceived risk was measured using the scale adapted from Tseng and Wang (2016) and Zhang and Yu (2020). This scale consists of five items measuring consumers' purchase risk assessment through KOC.

Customer trust was measured using the scale adapted from Sun et al. (2022) and Lou and Yuan (2019). Question items included five, which were used to measure consumers' trust in products or brands through KOC.

Purchase Intention was assessed using the scale adapted from Chen (2022) and Zhao et al. (2020). Question items included five, measuring consumers' purchase intention after being influenced by KOC.

Data Analysis Method

The study employed structural analysis by partial least squares structural equation modeling to assess the measurement and structural models. PLS-SEM combines principal component analysis, path analysis, and regression sets to determine standardized regression coefficients for model paths and factor loadings of measurement items (Chin & Newsted, 1999). PLS-SEM is preferred over covariance-based SEM due to its ability to work with smaller sample numbers and be more effective in circumstances of anomalous data distribution (Hair et al., 2021;

Ratasuk, 2022). Warp PLS 8.0 was selected because it is the latest version. However, the gathered survey data must first be examined for an appropriate degree of multicollinearity, common method bias, or CMB, as well as convergent and discriminant validity and reliability before PLS-SEM analysis can begin.

The data collection methods and self-administered questionnaire have been examined and complied with all Research Ethics Committee (REC) standards, obtaining reference number PIM-REC 010/2567.

Research Results

Six hundred and seventy-eight Xiaohongshu consumers were initially approached, and 599 of them, 88.35 %, responded to the survey. The results revealed that most respondents were female (532), accounting for 88.81% of the respondents, and the rest were 67 males, representing 11.19%. Most respondents (386) were between 18 and 25 years old, representing 64.44% of the sample, followed by 113 respondents between 26 and 30 years old, accounting for 18.86%. Four hundred thirty-two respondents have a bachelor's degree, or 72.12%, followed by those with a master's degree (129 people), representing 21.54% of the total sample. Two hundred and three respondents have disposable income between 2000 and below 2000 RMB per month, representing 33.89%, and 153 respondents have disposable income between 2001 and 4000 RMB per month, accounting for 25.54.

Prerequisites need to be met before performing PLS-SEM analysis. Convergent and discriminant validity, reliability, and model fit indices were evaluated. Ratasuk (2022) evaluated convergent validity by an analysis of factor loadings, Composite Reliability (CR), and Average Variance Extracted (AVE). All factor loadings of all constructs ranged from 0.511 to 0.867. This conforms to Cheung and Wang (2017) and Cheung et al. (2023), who recommended that all factor loadings should be no lower than 0.5. Table 2 shows that the lowest CR value is 0.772. At the same time, the CR of all constructs is recommended to be highto0.7 to be recognized as satisfaction, while the AVE values range from 0.605 to 0.735, recommended that the AVE of all constructors significantly greater than 0.5, indicating less error remains (Hair et al., 2020). Therefore, the convergent validity of the data is satisfactory.

Discriminant validity was established by comparing the square root of the Average Variance Extracted (AVE) for each variable with its respective correlations. Table 2 results indicated that all variables' square root of AVE values were higher than all relevant correlations, confirming satisfactory discriminant validity (Fornell & Larcker, 1981). As illustrated in Table 2, composite reliability and Cronbach's alpha for all variables ranged from 0.730 to 0.906, higher than 0.7 total. Complete collinearity tests were performed to test multicollinearity among the variables and standard method bias (CMB). Kock (2015) recommended that the full VIF be lower than 3.3. Table 5 shows that the highest VIF was 2.876, lower than 3.3. Therefore, the model has no serious multicollinearity issue and is free from CMB.

Table 2 Correlations, Composite Reliability (CR), Cronbach's Alpha, and Full Collin. VIF

List	Purchase	Trust	Risk	KOC
Purchase	(0.736)			
Trust	0.646**	(0.814)		
Risk	-0.403**	-0.439**	(0.797)	
KOC	0.646**	0.781**	-0.445**	(0.798)
Composite Reliability (CR)	0.772	0.838	0.897	0.919
Cronbach's Alpha	0.730	0.759	0.855	0.906
Full Collin. VIF	1.921	2.865	2.865	2.876

Source: **p-value≤0.01, Purchase=Purchase Intention, Trust=Customer Trust, Risk=Perceived Risk, KOC=Key Opinion Consumer

Lastly, ten measurement criteria in model fit indices in Table 3 presented the total quality of this research model as satisfactory.

Table 3 Model Fit and Quality Indices

Model Fit Indices	Coefficient	Result
Average Path Coefficient (APC)	0.220^{**}	Significant
Average R-Squared (ARS)	0.462**	Significant
Average Adjusted R-Squared (AARS)	0.459^{**}	Significant
Average Block VIF (AVIF)	2.096	Ideally
Average Full Collinearity VIF (AFVIF)	1.834	Ideally
Tenenhaus GoF (GoF)	0.587	Large
Simpson's Paradox Ratio (SPR)	1.000	Ideally
R-Squared Contribution Ratio (RSCR)	1.000	Ideally
Statistical Suppression Ratio (SSR)	1.000	Acceptable
Nonlinear Bivariate Causality Direction Ratio (NLBCDR)	0.900	Acceptable

Source: **p-value≤0.01

Moreover, the normality results showed that none of the variables were normally distributed, confirming that PLS-SEM suits this study (Ratasuk & Charoensukmongkol, 2020). Consequently, the overall quality of this research model was considered satisfactory, and all proposed hypotheses were ready to be tested. Figure 1 presents the results from PLS-SEM analysis.

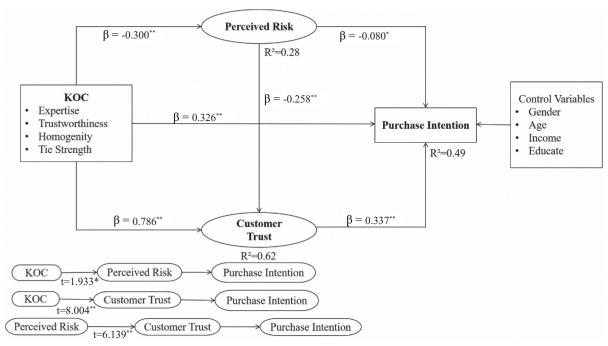


Figure 1 The PLS-SEM Results

Source: *p-value < 0.05, **p-value < 0.01

Figure 1 presents the results of PLS-SEM, showing the relationships among all the factors, which are as follows.

Hypothesis 1 suggested that KOC positively impacts purchase intention (β = 0.326; p < .01). The results indicated that KOC positively impacts purchase intention; thus, hypothesis 1 is supported.

Hypothesis 2 suggested that KOC negatively influences perceived risk (β = -0.300; p < .01). The results indicated that KOC positively influences perceived risk; thus, hypothesis 2 is supported.

Hypothesis 3 suggested that KOC positively impacts customer trust ($\beta = 0.786$; p < .01). The results indicated a positive impact of KOC on customer trust; thus, hypothesis 3 is supported.

Hypothesis 4 suggested that perceived risk has a negative effect on purchase intention (β = -0.080; p = .025). The results showed a negative effect of perceived risk on purchase intention; thus, hypothesis 4 is supported.

Hypothesis 5 suggested that perceived risk negatively influences customer trust (β = -0.258; p < .01). The results showed that perceived risk is negatively associated with customer trust; thus, hypothesis 5 is supported.

Hypothesis 6 suggested that customer trust positively impacts purchase intention (β = 0.337; p < .01). The results indicated a positive impact of customer trust on purchase intention; thus, hypothesis 6 is supported.

Hypothesis 7 suggests that perceived risk positively mediates the positive relationship between KOC and purchase intention. The Sobel test results indicated a significant positive and partial mediation of perceived risk between KOC and purchase intention (t = 1.933, p = .048). Therefore, hypothesis 7 is supported.

Hypothesis 8 suggests that customer trust positively mediates the positive relationship between KOC and purchase intention. The Sobel test results indicated a significant positive and partial mediation of customer trust between KOC and purchase intention (t = 8.004, p = .000). Therefore, hypothesis 8 is supported.

Hypothesis 9 suggests that customer trust negatively mediates the negative relationship between perceived risk and purchase intention. The Sobel test results indicated a significant positive and partial mediation of customer trust between perceived risk and purchase intention (t = 6.139, p = .000). Therefore, hypothesis 9 is supported.

According to the PLS analysis, the association influences of the four control variables, including gender, age, income, and education, on purchase intention were also tested. The analysis showed no significant impacts of gender, age, income, and education on purchase intention.

Discussion

This research explores the influence of KOC on customers' buy intentions in social commerce and how KOC enhances customers' purchase intentions by mediating perceived risk and customer trust. The study found that these findings are consistent with previous research that KOC positively and significantly impacts user purchase intention and customer trust while reducing perceived risk (Chen et al., 2022; Nguyen et al., 2023; Phan & Nguyen, 2024). For example, Xu and Wang (2018) study found that expert recommenders possess extensive product knowledge or experience. Consumers can leverage their expertise to mitigate the risk of unfamiliarity with the product, enhance trust, and boost their desire to purchase. Consumers will only be willing to buy when they have sufficient trust. Meanwhile, the research findings showed that perceived risk harms purchase intention and customer trust, aligning with previous studies (Ariffin et al., 2018; Ilhamalimy & Ali, 2021). For example, the findings of the research of Farivar et al. (2017) revealed that the sense of danger had a strong negative effect on trust. When consumers have faith in a product, it decreases the perceived risk. For social commerce, the perceived low risk when conducting transactions can increase consumer trust and interest in purchasing online. Moreover, the study demonstrated a strong and meaningful correlation between consumer trust and purchase intention, aligning with other research findings (Firmansyah & Ali, 2019; Gibreel et al., 2018; Zhao et al., 2019). For example, the study of Firmansyah and Ali (2019) found that consumer trust creates reasonable confidence in the seller and will increase the tendency of consumers to repurchase. Lastly, the study revealed that perceived risk and customer trust mediate between KOC and purchase intention, aligning with prior studies (Bhandari & Rodgers, 2018; Farivar et al., 2017). For example, Ilhamalimy and Ali (2021) discovered that consumer trust in the Shopee App facilitates access to information from diverse and dependable sources and recommendations from other consumers, hence boosting consumer interest in online buying on Shopee. The results also indicate a negative correlation between customer trust, perceived risk, and purchase intention. Silva et al. (2019) found that increased perceived risk reduces trust in the online environment, leading to a decline in purchase intention and activity.

Conclusion

In this context, online consumers who positively perceive KOCs as valuing their expertise, trustworthiness, homogeneity, and tie strength tend to have higher intentions to purchase products and services reviewed by the KOCs since they tend to perceive a lower level of risk from purchasing. As a result, they tend to feel more confident and trust the products and brands, which eventually drives their intentions to purchase. This may be because of the nature of online purchasing that consumers limitedly experience products and services before deciding to purchase; therefore, making online consumers perceive lower risk while promoting their trust in products and services that they can only experience through multimedia is crucial in promoting their purchase intentions and can be done by KOCs.

Recommentdations

Academic Contributions

This study explores the impact mechanism of KOC on purchase intention in social commerce, paying particular attention to the mediating role of perceived risk and customer trust framed by social capital theory. This study fills the research gap on the role of KOC, provides new models and directions for future research, and has positive academic significance for promoting the development of the social commerce field.

Practical Contributions

To effectively enhance customer purchase intentions, businesses and marketers should: 1) Identify and cooperate with KOCs whose values and audiences align closely with their products to maximize impact on visibility and purchase intentions. For example, partnering up with micro-influencers on platforms like Xiaohongshu can drive significant sales due to authentic recommendations. 2) Develop interactive campaigns encouraging KOCs to engage directly with consumers, such as hosting live-stream shopping events featuring KOCs who engage with viewers through real-time demonstrations and Q&A sessions. This direct interaction boosts consumer confidence and trust and encourages immediate purchases. 3) Integrate user reviews and KOC video testimonials showcasing product usage to help alleviate consumer concerns and reduce perceived purchase risks. For example, a KOC might demonstrate a fashion item in various scenarios, addressing potential customer doubts about fit and style. 4) Allow KOCs to share genuine experiences with products, which can help build authenticity and credibility, enhancing consumer trust. 5) Promote user-generated content featuring KOC endorsements and honest customer feedback to create a community feel and reduce perceived risks. 6) Implement training programs for KOCs to ensure they communicate brand values and product features effectively, thus enhancing their influence on purchase intention. For example, a cosmetic brand has trained KOCs to discuss body positivity while promoting their products, ensuring consistent messaging that resonates with consumers. 7) Establish loyalty programs that reward KOCs and customers for engagement and purchases, reinforcing trust and encouraging repeat transactions. 8) Tailor marketing strategies to resonate with the cultural nuances of the Chinese market, ensuring KOCs reflect local consumer sentiments and preferences. For instance, during the Lunar New Year, a global sneaker brand collaborates with KOCs to promote limited-edition products that celebrate traditional themes, making them more appealing to consumers. 9) Create mechanisms to gather and analyze feedback on KOC performance and consumer sentiments,

allowing brands to quickly adapt strategies to market changes. For example, if a KOC highlights a specific issue with a product, brands can quickly adjust their messaging or product offerings in response to consumer concerns.

Limitations

The limitations of this research also need to be recognized. 1) The results are based on data collected from Xiaohongshu social commerce platform customers in Shanghai City, China; therefore, the findings may not apply to other social commerce platforms or in different contexts. 2) All variables' measurements were subjective evaluations, which may cause subject bias. 3) Other influential variables not included in this study, such as perceived credibility, perceived value, and brand awareness, may provide interesting results in future studies if included. 4) Since the data were collected using a cross-sectional method, the results may not represent causal relations but only correlations among the variables.

Recommendations for Future Research

Recommendations for future research are: 1) Regarding the role of KOC in promoting purchase intention, this study can also consider the differences in the influence of different cultural backgrounds and different social platforms on KOC, conduct cross-cultural and cross-platform comparative studies, and explore the characteristics and rules of KOCs' impact on purchase intention in different environments. 2) Examine other factors that can affect purchase intention as mediating variables between KOC and purchase intention, such as perceived credibility, perceived value, and others. 3) Explore the effect of KOC on other desirable factors, such as brand awareness and brand loyalty.

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The Moderating Effects of Brand Equity on the Relationship between Consumer Nationalism and Consumer Behavior: The Case Study of Parcel Delivery Service Providers in Thailand

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Abstract

This study aimed to investigate the impact of consumer nationalism on consumer behavior, using brand equity as a moderator to examine the relationship between consumer nationalism and consumer behavior in the context of parcel delivery service providers in Thailand. The study's respondents were 400 service users. We gathered data through online questionnaires. The statistical methods employed for data analysis consisted of percentages, means, standard deviation, and multiple regression.

The results of this study found that most respondents showed a medium level of brand equity perception. Consumer nationalism affects consumer behavior at the 0.01 significant level, and this variable accounted for 23.71% of the total variance. Brand equity, brand awareness, and perceived quality aspects act as moderators in the relationship between consumer nationalism and consumer behavior at the 0.01 significant level, and these variables accounted for 55.94% of the total variance. The understanding of the relationship among consumer nationalism, brand equity, and consumer behavior enables Thai parcel delivery service providers to utilize their company, brand, and quality to enhance awareness and develop strategies for achieving a competitive advantage in the parcel delivery industry.

Keywords: Consumer Nationalism, Consumer Behavior, Brand Equity, Moderator, Parcel Delivery Service Providers

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Introduction

The coronavirus disease of 2019 (COVID-19) outbreak has caused changes in consumer behavior. The e-commerce industry's valuation has increased due to the widespread use of e-commerce as a sales channel. Most retailers, including those engaging in online trading, have switched from selling offline to online sales platforms (Kasikorn Research Center, 2021). In 2022, the e-commerce market was valued at over 600 billion baht, with rapidly expanding product categories including fresh food, dry food, beverages, and personal care products (Kasikorn Research Center, 2022). The worldwide economic downturn has led to diminished purchasing power for consumers. Consequently, businesses must adjust to market competitiveness, with supply chain management being a vital element in producing and sustaining sales and target demographics.

The spending power of consumers has not entirely rebounded, and numerous options remain accessible. Purchasing power remains fragile and continues to decline, particularly among the lower-income groups. Reduced consumer spending affects small businesses in both Bangkok and provincial areas, as evidenced by shrinking sales following the COVID-19 pandemic (The Nation, 2024). A proficient, rapid, and secure delivery system that can augment the comfort of online transactions is essential for the success of e-commerce enterprises (Mathuros et al., 2022). The desire for online purchasing of products and services will persist beyond the epidemic (Kasikorn Research Center, 2022). Thus, the transportation and logistics industry is essential for promoting the growth of e-commerce and parcel delivery. In 2020, Thailand's parcel delivery business had a 35% increase compared to 2019, reflecting changing customer behavior during the COVID-19 pandemic. According to TTB (2023), the parcel delivery business is expected to grow at a continuous rate of 18% in 2023, valued at 115 billion baht, in line with the growth of the e-commerce market. In addition, the parcel delivery industry will benefit from improved cross-border trade and the continuing strength of e-commerce. The transport industry can expect to see average annual growth of 2.0-3.0% over 2024-2026 (Krungsri Research, 2024).

The heightened growth has compelled transportation business operators to adjust. Transport companies must consider four primary factors: cost, quality, service value, and delivery speed, which is the client's top preference (Electronic Transactions Development Agency, 2021). Currently, there are extensive e-commerce service providers for parcel delivery, encompassing both public and commercial entities, as well as domestic and international firms, with distribution locations throughout Thailand. In 2020, the transportation sector experienced a growth rate of over 400% compared to 2019, accompanied by competition through a range of supplementary services. For instance, several services improve user convenience by collecting items directly from the doorway without minimal requirements or additional charges.

Prominent transportation enterprises, encompassing both state-owned and private entities, comprise Thailand Post Co., Ltd., Kerry Express (Thailand) Co., Ltd., Flash Express (Thailand) Co., Ltd., Global Jet Express (Thailand) Co., Ltd., SCG JWD Logistics Public Company Limited, SPX Express (Thailand) Co., Ltd., and Best Logistics Technology (Thailand) Co., Ltd., among others. Every brand cultivates a distinctive image that is memorable and enhances awareness of its unique services. Most of these entities are corporations that have expanded investments from international operators, with the sole exception of Thailand Post Co., Ltd., established through the conversion of a state enterprise. Flash Express was initially founded as a start-up business by Thais SCG JWD Logistics Public Company Limited is a Thai-founded, managed, and operated company.

The e-commerce sector's expansion has resulted in a rise in sales and the daily volume of shipments transported. The COVID-19 pandemic and subsequent operational policies have influenced each organization's operational processes. This situation exemplifies the shutdown of distribution centers in compliance with government regulations and the temporary halt of parcel delivery services in specific regions. Employee resignations have resulted in a significant accumulation of packages. Mergers, acquisitions, and business sales have influenced each organization's reputation and consumer trust in using their services.

The trend of nationalism in Thailand's provision of goods and services is not yet distinctly observable. To entice consumers, Thai brands frequently select names that resemble those of Japanese or Korean languages instead of using Chinese or Thai, leading them to perceive these products as foreign. This indicates that Thai brands have not yet achieved significant domestic recognition. In the context of consumer products and services, research in Indonesia revealed that nationalism and religion simultaneously strengthen the emotional connection between consumers and brands. Consequently, proprietors of small businesses possess the capacity to establish communication channels that verify the nationality and religious affiliations of their customers (Fachrurazi et al., 2024). Research on Malaysian nationalism demonstrates a relationship with religion, indicating that religious nationalism acts as a replacement for ethnic nationalism and has, in fact, intensified ethnic nationalism by heightening the stakes for communities outside the dominant national group (Barr & Govindasamy, 2010). Nguyen et al. (2023) conducted a study in Vietnam, demonstrating that customer ethnocentrism negatively affects the perception of the nation's image and Vietnamese consumers' purchasing intentions for Chinese imported goods. While, China has experienced a persistent surge of nationalism in consumer behavior. Chinese buyers increasingly realize they can acquire product attributes equivalent to those of other brands (Positioning, 2020). Since 2018, Chinese consumers have mostly transformed into a patriotic collective, preferring to purchase from domestic companies. This tendency has been enabled by significant improvements in the quality of Chinese products in recent years (Eng. 2021). Data from JD.com indicates that during the company's online shopping festival in June 2021, sales of Chinese brands surpassed those of international brands by 4%, and the number of consumers for Chinese brands was approximately 16% higher than that for foreign brands (Brand Inside, 2021). As the pandemic situation in China improved, the surge in online purchases following the forced stay-at-home due to COVID-19 led to a recovery in the consumer market. Public infrastructure development also enabled sellers to rapidly expand their businesses, contributing to the growing demand for local Chinese brands.

The significant event that sparked a sense of nationalism among Chinese consumers stemmed from the boycott of cotton from Xinjiang by global brands such as H&M, Nike, and Adidas. This was due to concerns over human rights violations in Xinjiang. The boycott acted as a catalyst, generating dissatisfaction among Chinese consumers and prompting them to turn back to domestic brands for goods and services (The Standard, 2021).

With the growth of e-commerce and the rise of nationalism, the researcher aims to study the factors influencing consumer behavior in choosing parcel delivery service providers. The study of the relationship between consumer nationalism and consumer behavior can be beneficial for marketing planning, strategy formulation, and adapting formats to meet consumer demands as effectively as possible. It also aims to understand the concepts and behaviors of Thai consumers when choosing parcel delivery service providers, particularly how the origin of brands or the nationality of goods and services influences consumer behavior. The concept of brand equity will

serve as a moderating variable to examine its influence on the relationship between consumer nationalism and consumers' evolving behaviors.

Research Objectives

- 1. To examine the relationship between consumer nationalism and consumer behavior.
- 2. To examine the influence of brand equity moderating variables on the relationship between consumer nationalism and consumer behavior.

Research Hypotheses

- 1. Consumer nationalism influences consumer behavior in using parcel delivery service providers.
- 2. Brand equity is a moderating variable in the relationship between consumer nationalism and consumer behavior in using parcel delivery service providers.

Literature Review

Brand Equity

Creating value for a brand was considered an important mission that led to business growth. Recognizing the value that a brand offers beyond just having good products and impressive services is crucial for the business's success. A brand reputation value can generate significantly higher revenue (Keller, 2003). Moreover, brand equity is important for expanding product lines. If the brand equity is positive, engaging consumers in various aspects will further enhance the brands worth (Wang et al., 2006). Additionally, selecting individuals whose personality traits align with the brand can create certain characteristics that stimulate consumers' minds. Entrepreneurs who are starting to build their brand aim for it to become widely recognized, gaining acceptance and trust from consumers. Reaching a point where consumers recognize the brand's stance takes time, patience, and careful planning from the beginning (Washburn & Plank, 2002).

Kotler (2012) defined the term "brand" as the extent to which consumers are familiar with distinctive features or image. Having a positive brand image can build trust and lead consumers to recommend that brand to others they know and tend to use the same products and services repeatedly. Businesses with strong brand recognition have the opportunity for continuous growth from repeat purchases by existing consumers. Consumer trust and loyalty have become key factors in determining a brand's long-term success.

Integrity in brand representation is essential for consumer loyalty. Transparent branding from the beginning fosters a robust consumer base, resulting in a resilient brand that retains existing customers who repeatedly purchase the company's products and services. Maintaining the current consumer group and fostering long-term trust or brand loyalty is crucial. Furthermore, allowing consumers to express their opinions on products and services demonstrates that the brand is interested in listening to their needs. Consumer feedback, both positive and negative, can help businesses respond to their customers' genuine demands. Encouraging consumers to share their thoughts and engage in two-way communication is undoubtedly more beneficial for brand perception than one-way communication (Marconi, 1993; Pickton & Broderick, 2001).

Aaker (1991) describes the components of brand equity in four ways:

- 1. Brand awareness refers to consumers' capacity to identify and recall a brand's name and logo. Establishing brand recognition and familiarity among consumers will influence their purchasing decisions regarding that brand. Consumers have a greater trust in established brands compared to unfamiliar ones. Emphasizing brand recognition is essential, especially in the digital era characterized by the continuous emergence of competitors. This involves focusing on creating content that attracts consumers. Engagement with consumers is crucial for brand recognition, comprehension, and retention. Consistent content creation enhances the likelihood of ranking on the first page of Google searches, especially when the information is valuable and addresses customer requirements. An increase in online alternatives for consumers or product seekers is advantageous. The production of visually pleasing infographics and visuals, along with animation content such as video presentations, significantly raises the probability of content retention.
- 2. Brand association refers to the elements of a brand that effectively communicate its identity and facilitate customer recognition of its products and services. This knowledge can confer a unique advantage over competitors with similar brands, or it can involve using celebrities as brand ambassadors to establish a connection with the brand. If consumers admire these people, it will positively impact the brand.
- 3. Perceived quality refers to consumers' acceptance and satisfaction with a brand after trying competitors' products and services in the same category. Consumers consider various aspects of the products, including the basic characteristics of the goods and services, the special features, the trustworthiness of the product, the durability, the ability to provide service, and the appropriateness of the appearance and quality of the product. These factors contribute to consumers' perception of the quality of the goods and services, which helps create value for the brand and supports consumers in making purchasing decisions for that brand.
- 4. Brand loyalty refers to the various forms of repeat purchasing behavior exhibited by consumers, which impacts the creation and maintenance of a consumer base and protects the brand's market share. This ensures that the brand can achieve long-term profitability.

From the consumer's perspective, the value of a brand derives from the consumer's understanding of the brand. It reflects the consumer's willingness to purchase items and services associated with that brand. Improving brand equity from the consumer's perspective will concurrently elevate brand value from the company's standpoint (Choosanook & Hengmechai, 2013).

Consumer Nationalism

Over the years, people have used the term "nationalism" in various contexts, but it typically refers to the attitudes and perceptions individuals have for their nation. Nationalism tends to be helpful because it encourages people to support their country and its government. Consumer nationalism refers to the phenomenon where citizens of a country consume goods and services from their national brands (Nelson, 2000; Duffus, 2015). China, a prominent example of consumer nationalism, has stimulated the production of goods and technology through domestic companies while encouraging consumption within the country. Furthermore, China has instituted the Made in China 2025 policy to guarantee the recognition of Chinese brands in both domestic and international markets. This serious promotion of consumer nationalism has increased Chinese consumers' satisfaction with domestic brands across nearly all product

categories, including fashion and bags, where previously they preferred foreign brands over local brands (Li et al., 2017).

Consequently, utilize marketing strategies that are likely to raise nationalist sentiments. Nationalist attitudes can bolster consumer loyalty to domestic firms, leading to a reduced inclination to buy inferior items from such companies. Therefore, marketers need to guarantee that the items and services they provide are of exceptional quality.

Consumer Behavior

During the COVID-19 pandemic, comprehending online consumer behavior will facilitate the identification of more effective strategies to engage and attract target demographics since each group possesses distinct demands influenced by their personality traits and lifestyle behaviors (Schiffman & Kanuk, 2007). Following the COVID-19 pandemic crisis, consumer behavior has changed and adapted rapidly. Consumers are planning their spending, paying more attention to their health, seeking information through online channels, and increasingly ordering products through online platforms.

Entrepreneurs and companies must adapt to changing consumer behaviors by maintaining and elevating various standards, such as product and service quality. They should establish brand recognition through various media, particularly online channels. Additionally, conducting market tests to gather consumer feedback will help ensure that products and services meet consumer needs more effectively, allowing for adjustments if those products or services do not adequately satisfy consumer demands. This also serves as another avenue to boost sales.

Researchers have extensively studied the impact of nationalism on consumer behavior, revealing its powerful role in consumer decision-making. Indeed, research has shown that nationalism can be a major factor in how consumers view products and brands (Sunardi, 2011). For example, Konrad and Schwarz found that nationalist attitudes can lead consumers to be more loyal to their country's brands. Furthermore, nationalist attitudes can encourage consumers to pay more for products and services from their country's brands. Lee et al. (2014) stated that nationalism significantly influences consumer decision-making, requiring marketers' thoughtful consideration in strategy development. Marketers should ensure that the items and services they offer are relevant to the nationality of their target audience. A corporation marketing items tailored for a certain country must guarantee these products resonate with the nationality of its intended audience.

Consuming goods and services with a sense of nationalism is a personal choice that no one can force upon you. Each person can choose to support or reject foreign products. In this analysis, products broadly refer to the goods and services provided by parcel delivery services. In the research conducted on the moderating effects of brand equity on the relationship between consumer nationalism and consumer behavior, specifically in the case study of parcel delivery service providers, the researcher has established the conceptual framework for the study, as illustrated in Figure 1.

Research Conceptual Framework

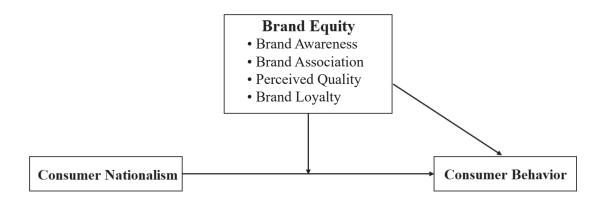


Figure 1 Research Conceptual Framework

Methodology

Population and Sampling

The research population consists of users who had chosen the parcel delivery service themselves within the prior 6 months of the survey in the Bangkok metropolitan area and its surroundings; however, the precise size remains undetermined. This study employed a convenience sampling method to select easily accessible samples from customers of parcel delivery services in the Bangkok metropolitan area and surrounding regions who are 18 years or older.

Sample Size Calculation

Due to the precise population size uncertainty, the researcher established a sample group for the study. As a result, the researcher determined the sample size using Cochran, 1977 approach, a formula designed for estimating sample size when the precise population is indeterminate, with a 95% confidence level and a maximum allowable error of 5%. With the following formula:

 $n = \frac{z^2}{4e^2}$

when:

n = sample size

z = level of confidence according to the standard normal distribution (for a level of confidence of 95%, z = 1.96)

p = estimated proportion of the population that presents the characteristic (when unknown we use p = 0.5)

e = tolerated margin of error (for example, we want to know the real proportion within 5%)

To calculate a proportion with a 95% level of confidence and a margin of error of 5%, we obtain

$$n = \frac{(1.96)^2}{4(0.05)^2}$$

$$n = 385$$

According to the sample group's calculations, there are 385 samples in order to reduce the number of errors in data collection, which aligns with the ideas of Hair et al. (2010), having a large sample size increased the accuracy and reliability of the data, prompting the researchers to increase the sample size to 400 samples through convenience sampling. The researchers conducted the sampling with users of a parcel delivery company in the Bangkok metropolitan area from January to March 2024 until they reached the required number.

Research Tools

The questionnaire is designed to examine consumer nationalism, brand equity, and consumer behavior. It comprises five components: Part 1 consists of screening questions; Part 2 collects general information about the respondents; Part 3 examines opinions on brand equity and consumer behavior; Part 4 concentrates on perspectives regarding the origin of goods and services; and Part 5 further suggestions.

We designed the questionnaire as a Likert scale-based rating scale. The 5-point Likert scale consists of the following points: 1) Strongly disagree; 2) Disagree; 3) Neither agree nor disagree; 4) Agree; 5) Strongly agree. The researcher completed the questionnaire creation process using the following steps:

- 1. Study documents from information sources, concepts, theories, and research related to nationalism, brand equity, consumer behavior, and various factors related to the origins of goods and services to contribute to the design of the questionnaire.
 - 2. Define the questionnaire structure to cover the research objectives.
- 3. Using content validity assessment methods, three experts in the relevant field evaluated the questionnaire's content validity. This involved analyzing the questions and assigning scores to check the Index of Item Objective Congruence (IOC). If the index of the IOC is between 0.5 and 1.00, it suggests that the item is acceptable (Turner & Carlson, 2003). For this research, the IOC values for each item in the questionnaire ranged from 0.67 to 1.00, which falls within the acceptable range for preliminary testing before actual use.
- 4. To assess the tool's quality, we tested the questionnaire on a population, not the sample group of 30 people. We analyzed the reliability using Cronbach's alpha coefficient. The test results demonstrated that Cronbach's alpha coefficient was 0.91, suggesting its suitability for relationship analysis.
- 5. Adjust the questionnaire's wording and language for clarity, as well as the format of the questions, and then use the questionnaire in the research with the sample group.

Data Collection

We collected data on consumer nationalism, brand equity, and consumer behavior using an online questionnaire. The data collection process took approximately 10 minutes. To ensure privacy, we assigned participant codes instead of their names and did not publicly disclose individual data. We reported the research findings as aggregated data. Only those involved in this research can access the information. Data analysis entails analyzing and summarizing data from questionnaires, as well as processing the information using a computer with specialized software. Quantitative data analysis employs two forms of analysis: 1) Descriptive statistics use tools like frequency distribution, percentages, means, and standard deviations to look at the general traits of a population group. 2) Inferential statistics use multiple regression analysis to test the connections between independent variables, controlled variables, and dependent variables, with a significance level of 0.05.

Data analysis entails analyzing and summarizing data from questionnaires and processing the information using a computer with specialized software. Two forms of analysis are employed when analyzing quantitative data: 1) Descriptive statistics use tools like frequency, percentages, means, and standard deviations to look at the general traits of a population group. 2) Inferential statistics use multiple regression analysis to test the connections between independent variables, controlled variables, and dependent variables, with a significance level of 0.05. Regression analysis is crucial in business research for understanding relationships between variables and predicting outcomes.

Results

Descriptive Statistic

The analysis results from the survey respondents, who are users of a parcel delivery service in the Bangkok metropolitan area and its vicinity, totaling 400 individuals. The researcher collected the data and conducted statistical analysis by presenting frequency, percentage, mean, and standard deviation. The majority of respondents to the survey were female, totaling 320 individuals, which accounts for 80.00%. Male respondents numbered 80, making up 20.00%. Most respondents were between 18 and 29 years old, totaling 299 individuals, or 74.75%. Those aged 30-39 years, totaling 87 individuals, or 21.75%, and those aged 40-49 years, totaling 14 individuals, or 3.50%, followed.

The majority of respondents, accounting for 38.00%, had a total monthly income per family ranging from 10,000 to 20,000 baht. Following that, the total monthly income ranged from 20,000 to 30,000 baht, with 85 people accounting for 21.25%. Meanwhile, the total monthly income below 10,000 baht was shared by 75 individuals, accounting for 18.75% of the total.

The Analysis Result of Brand Equity Impact on Consumer Behavior

The issue of brand equity that affects the consumer behavior of parcel delivery service providers encompasses four aspects: brand awareness, brand association, perceived quality, and brand loyalty. We collected and analyzed the data using mean values, standard deviations, and correlation coefficients. The results of the analysis are as follows:

Table 1 Mean, Standard Deviation, and Correlation Coefficient of Brand Equity Value for Parcel Delivery Service Providers

Brand Equity	\bar{x}	S.D.	1	2	3	4
1. Brand Awareness	3.57	.76	1			
2. Brand Association	3.12	.81	.564*	1		
3. Perceived Quality	3.36	.80	.731*	.773*	1	
4. Brand Loyalty	3.25	.84	.592*	.827*	.840*	1

^{*}Significant at 5% level

The study's findings indicate that brand awareness positively correlates with brand association, perceived quality, and brand loyalty among parcel delivery service providers' consumers, with statistically significant correlation coefficients of 0.564, 0.731, and 0.592, respectively. Brand association reveals a positive correlation with perceived quality and brand loyalty which are statistically significant, with correlation coefficients of 0.773 and 0.827, respectively. Table 1 indicates a positive statistically significant correlation between perceived quality and brand loyalty, with a correlation coefficient of 0.840.

Before performing multiple regression analyses, it is essential to verify that the variables in the study meet the fundamental requirements and assumptions. We establish the following set of statistical assumptions:

- 1. Linearity: The independent variable and the dependent variable have a linear relationship, as indicated by a statistical significance value for linearity of ≤ 0.05 . This shows that the independent variable and the dependent variable are linearly related. The results of the linearity test revealed a statistical significance value of 0.000, indicating that the relationship between the independent variable and the dependent variable is significantly linear.
- 2. Multicollinearity: Each independent variable must not have any correlation with one another or be independent of each other. The statistic used for testing is the VIF (Variance Inflation Factor), where the VIF of all independent variables must be less than 10. The data test results showed that the tolerance of all independent variables is close to 1, ranging from 0.80 to 0.97, and the VIF of all independent variables is below 10, ranging from 1.72 to 5.03. Therefore, it can be concluded that all independent variables used in the test do not have any level of correlation with each other.
- 3. Normality Distribution: The data follows a normal distribution, as determined by the skewness and kurtosis values of the variables studied. The criteria for evaluating the skewness and kurtosis of the variables should not exceed ± 2 at a statistical significance level of 0.05 (Hair et al., 2006). Therefore, it is considered that the variables are normally distributed. The test results showed that the minimum skewness value was 0.003 the maximum skewness value was 0.974, while the minimum kurtosis value was 0.204 and the maximum kurtosis value was 0.87. Thus, it is concluded that the variables are normally distributed.
- 4. Autocorrelation: The residuals are independent of each other (autocorrelation). The statistic used is Durbin-Watson, which indicates that if the Durbin-Watson value is close to 2 or falls within the range of 1.5-2.5, it shows that the residuals are independent. The data analysis found that the Durbin-Watson value is 1.595, thus concluding that the independent variables used in the test have no internal correlation.
- 5. Homoscedasticity: The error term's variance (e) remains unchanged because of its homoscedasticity. The chi-square value of 1.47 (Breusch-Pagan/ Cook-Weisberg test for heteroscedasticity) and the p-value of 0.2246 indicate that the variance of the error term is constant.

Inferential Statistic

The results of multiple regression analysis to test the relationships among independent variables, moderating variables, and dependent variables are as follows:

Hypothesis testing 1: Consumer nationalism influences consumer behavior using parcel delivery service providers.

Table 2 Results of Hypothesis Testing 1

Variables	Coef.	Std. Err	95% CI	p-value	R ²	Adjusted R ²
Consumer Nationalism	0.474	0.042	0.391, 0.558	0.001**	0.239	0.2371
Constant	1.999	0.138	1.727, 2.271	0.001**		

CI = Confidential Interval, **Significant at 1% level, *Significant at 5% level

From Table 2, the test of the relationship between consumer nationalism and its influence on consumer behavior in using parcel delivery service providers shows that the regression coefficient of the predictor variable is 0.474, with a p-value of 0.001. The R² value is 0.239, and the adjusted R² value is 0.2371, indicating that consumer nationalism significantly influences consumer behavior at a statistically significant level.

Hypothesis testing 2: Brand equity is a moderating variable in the relationship between consumer nationalism and consumer behavior in using parcel delivery service providers.

Table 3 Results of Hypothesis Testing 2

Variables	Coef.	Std. Err	95% CI	p-value	\mathbb{R}^2	Adjusted R ²
Equation 1						
Consumer Nationalism	0.202	0.043	0.117, 0.286	0.001**		
Brand Awareness	0.569	0.052	0.467, 0.671	0.001^{**}		
Brand Association	-0.162	0.062	-0.285, -0.04	0.010^{**}		
Perceived Quality	0.235	0.075	0.086, 0.383	0.002**		
Brand Loyalty	-0.015	0.069	-0.151, 0.121	0.825		
Constant	0.593	0.140	0.318, 0.868	0.001^{**}	0.5509	0.5452
Equation 2						
Consumer Nationalism	0.556	0.136	0.289, 0.824	0.001^{**}		
Brand Awareness	1.308	0.201	0.914, 1.703	0.001**		
Brand Association	0.034	0.200	-0.358, 0.427	0.863		
Perceived Quality	-0.500	0.262	-1.015, 0.016	0.050^{*}		
Brand Loyalty	0.024	0.234	-0.436, 0.483	0.919**		
Interaction Variables:						
Consumer Nationalism × Brand Awareness	-0.248	0.065	-0.376, -0.12	0.001**		
Consumer Nationalism × Brand Association	-0.063	0.061	-0.183, 0.057	0.303		
Consumer Nationalism × Perceived Quality	0.233	0.079	0.078, 0.389	0.003**		
Consumer Nationalism × Brand Loyalty	-0.011	0.071	-0.150, 0.129	0.878		
Constant	-0.371	0.387	-1.133, 0.39	0.001**	0.5694	0.5594

CI = Confidential Interval, **Significant at 1% level, *Significant at 5% level

Table 3 is the test of Hypothesis 2, where brand equity acts as a moderating variable in the relationship between consumer nationalism and consumer behavior. Equation 1 revealed that three aspects of brand equity, which consist of brand awareness, brand association, and perceived quality, significantly influence consumer behavior, with p-values of 0.001, 0.01, and 0.002, respectively. With a regression coefficient of the predictor variable equal to 0.556 and a p-value of 0.001, equation 2's addition of the interaction variables, the brand equity across all four aspects, revealed that consumer nationalism still significantly influences consumer behavior when choosing parcel delivery service providers. When considering the interaction variables related to brand equity across the four aspects, it was found that brand awareness (p-value equal to 0.001) and perceived quality (p-value equal to 0.003) are associated with consumer behavior. Therefore, it can be stated that the two brand equity dimensions mentioned above are moderating variables in the relationship between consumer nationalism and consumer behavior towards selecting parcel delivery service providers, with an R² value of 0.5694 and an Adjusted R² value of 0.5594.

Discussion

The research findings indicate that users possess a moderate awareness of brand equity. For brand recognition, users are most aware of communication and advertising, as well as the quality of products and services they have used or heard about. This aligns with the research of Theerakarn and Udomthanavong (2019), which found that brand awareness influences satisfaction and trust in the brand. Furthermore, it is consistent with Martin and Bush (2000) research, which found that respondents with a positive perception of brand equity tend to have a positive attitude toward the brand and a willingness to purchase additional products and services in the future.

The research findings also indicate that consumer nationalism significantly influences consumer behavior. This aligns with the study by Hung (2022), which found that people tend to prefer food produced domestically and often share positive feedback about its quality, creating a competitive advantage over rivals, as seen in the cases of Thai rice and Taiwanese bubble tea. This reflects a characteristic of consumer nationalism, which directly impacts consumer behavior. This finding aligns with previous research (Siallagan & Vallentine, 2018; Strizhakova & Coulter, 2019), which suggests that among highly nationalistic consumers, there is a subset that prioritizes purchasing local products and services. According to Wu et al. (2023), consumer ethnocentrism had a positive influence on the correlation between social responsibility and consumer loyalty among international retail companies in China. The analysis, which integrated the interaction variables of brand equity across four dimensions-brand awareness, brand association, perceived quality, and brand loyalty-indicated that brand awareness and perceived quality serve as moderating factors in the relationship between consumer nationalism and consumer behavior regarding the selection of parcel delivery service providers, exhibiting statistical significance at the 0.01 level. This is consistent with the research by Jitrakyat and Changchenkit (2020), which found that brand awareness and service quality, in terms of brand recall and recognition, affect consumer satisfaction regarding price and purchasing decisions. The brand's ability to create user awareness, from recognition to recall, ultimately influences consumer behavior.

When choosing a parcel delivery service, users typically favor established service providers with a positive reputation over new brands due to quality concerns. The results indicate that brand awareness, acting as a moderator, negatively impacts the relationship between consumer nationalism and consumer behavior. The reasoning behind this is that people's decision-making, especially for new companies, may be influenced if they perceive the company as Thai, potentially leading to a lack of confidence or experience with the quality of service. Furthermore, the price may exceed that of foreign brands, which can provide reduced rates, thereby affecting the selection of services (Murshed, 2019).

Brand association and brand loyalty have no significant influence on customer behavior. This may be due to a lack of visibility of the link between staff and service users in parcel delivery services and the use of presenters or other personnel in marketing efforts. The activities have yet to forge a link between the brand and the service users. The service users' reliance on convenience, cost, and service quality explains the minimal impact of brand loyalty on consumer behavior regarding parcel delivery service providers. Incidents like delayed delivery and damaged or lost shipments compel service consumers to transition to competitors, resulting in diminished brand loyalty and eventually a lack of influence. By attending to and addressing consumer issues, providing support in various dimensions, valuing both positive and negative feedback for product and service enhancement, and providing options that fulfill consumer needs, it can collectively enhance brand loyalty and ultimately influence consumer behavior.

Conclusion

Parcel delivery service providers in Thailand should engage in activities promoting brand equity, particularly in brand awareness and perceived quality. Service recipients should receive this information to establish the brand's presence. By creating differentiation in communication styles and designing unique identities that stand out from competitors, they can promote the idea of being a Thai parcel delivery service provider. Consumer nationalism directly affects consumers, and establishing brand awareness and perceived quality can significantly influence consumer behavior. When considering the issue of nationalism in consumption, it can predict consumer behavior at a rate of 23.71%. However, when considering variables such as brand equity, brand awareness, and perceived quality, the prediction of consumer behavior rises to 55.94%. Therefore, parcel delivery service providers should utilize information about the company, brand, and quality to create awareness and develop strategies to gain a competitive advantage in the parcel delivery industry.

Further study is warranted in other variables that may moderate the relationship between consumer nationalism and consumer behavior, such as aspects of the marketing mix. Alternatively, we could adjust the study's framework to examine the relationship between brand equity and consumer behavior, using consumer nationalism as a moderating variable to observe comparative results. This research study specifically collected data from questionnaires in the Bangkok metropolitan area. Therefore, those who intend to use or further develop the research findings must consider this limitation. Consumer nationalism is associated with several psychographic characteristics, such as consumer materialism and value consciousness, indicating that individual differences may affect behavior within the same cultural context. Future research could broaden its scope beyond consumer nationalism to include other pertinent psychographic variables, thereby deepening our understanding of consumer behaviors in developing countries.

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Introductions for Manuscript Preparation

Manuscript Printing

The submitted manuscript must have the following specifications:

- 1) It must be 10 15 pages in length, printed on one side of A4 paper, with the margins (top, bottom, left, and right) of 1 inch (2.54 cm.). Set to single columns.
- 2) Manuscript should be as concise and precise as possible.
- 3) Abstract printed in 1 column.
- 4) All contents and references are printed in 1 column with 1 cm of indentation.
- 5) The simplified font is Times New Roman, with details as specified below:

Format Requirements for Each Component of the Manuscript	Font Size	Labeling	
Title	18 (CT)	bold	
Author's Name (Name/Surname)	12 (CT)	bold	
Author's Affiliation / E-mail	9 (LJ)	First-page footer	
Abstract Title	14 (LJ)	bold	
Abstract Content (Single column)	12 (LJ)	regular	
Keywords Title	14 (LJ)	bold	
Keywords	12 (LJ)	regular	
Topics	14 (LJ)	bold	
Content	12 (LJ)	regular	
References Head	14 (LJ)	bold	
References (Alphabetically (A – Z))	12 (LJ)	regular	
Table Title (On top of the table)	12 (LJ)	bold	
Table Content (On top of the table)	12 (LJ)	regular	
Figure Title; Chart Title (Under the figure or chart)	12 (CT)	bold	
Figure Content; Chart Content (Under the figure or chart,)	12 (CT)	regular	
Source Head (Under the table/ the figure/ chart)	9 (LJ)	bold	
Source Content (Under the table/ the figure/ chart)	9 (LJ)	regular	

Components of the Article

- 1. Manuscript title
- 2. Name of every Author, with identification of affiliation office or university and country
- 3. Corresponding Author E-mail, identify only the e-mail of main author or the manuscript coordinator
- 4. Abstract must have the length of not more than 300 words, and must have Keywords of 3-5 words or phrases.
- 5. Content of manuscript
 - 5.1 Research article comprises: Introduction, Research Objective (s), Literature Review, Methodology, Results, Discussion, Conclusions, and Recommendations (If any)
 - 5.2 Academic article comprises: Introduction, Content, Conclusions, and Recommendations (If any)
- 6. References, using the format of APA (7th edition)
- 7. Figures, Charts, Tables, or other illustrations must be numbered, with correct reference of their sources. They must be clear, and distinctive, and not violate the copyright of the others.

The Examples of Presentation of Tables, Figures, and Charts

Table 1 Title of Table ...

"Table 1" printed in Times New 12 point font face, bold letters, left alignment

"Title of Table..." printed in Times New 12 point font face, normal letters

List			
(Each topic printed in Times New 12 point font face, bold	Number	Percentage	
letters, in the center of the table and in the center of each line)			
Content (Times New 12 point font face, normal letters, in the	1	70	
center of the table and in the center of each line)	1		
Content (Times New 12 point font face, normal letters, in the	2	20	
center of the table and in the center of each line)	2	30	
Total	4	100	

Sources or Remarks: Details......

[&]quot;Sources or Remarks:" printed in Times New 9 point font face, bold letters, left alignment "Details..." printed in Times New 9 point, normal letters

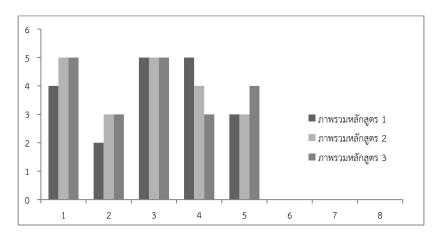


Figure 1 Name of Figure, Chart...

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As such, Tables, Figures, Charts, and Equations can be printed in one column, depending on the size, clarity, and appropriateness.

Quotations

Printed in Times New 12 point font face.

1. Quotations in the Contents

Format	Quotation	Quotation
	(In front of the sentence)	(At the end of the sentence)
One author	Coghlan (1993)	(Coghlan, 1993)
Two authors	Mohsen and Mohammad (2011)	(Mohsen & Mohammad, 2011)
Three or more authors	Burkart et al. (1997)	(Burkart et al., 1997)
Organization	Ministry of Education (2020)	(Ministry of Education, 2020)
Organization using	First quotation:	First quotation:
abbreviation	National Institute of	(National Institute of
	Development Administration	Development Administration
	(NIDA, 2018)	[NIDA], 2018)
	Next quotation:	Next quotation:
	NIDA (2018)	(NIDA, 2018)
Quotation from the	Shaw (2017, p. 172) or	(Shaw, 2017, p. 172) or
document (Specify	Shaw (2017, pp. 172-180)	(Shaw, 2017, pp. 172-180)
page number)		
Quotation from	J. M. Sun (Personal	(Sun, J. M., Personal
interviews	communication, August 18, 2021)	communication, August 18, 2021)

2. References at the End of the Article

All documents that have been quoted must be listed in the References at the end of the article. The list must be alphabetically ordered based on the reference sources and surname of the author. The reference format should follow that of APA (7th edition).

2.1 Format of Reference Based on Number of Authors

Authors	Reference at the End of Article
One author	Surname,/ First alphabet of name being a capital letter.
Two authors	Surname,/First alphabet of name being a capital letter.,/&/Surname of second
	author,/First alphabet of name being a capital letter.
3-20	Surname,/First alphabet of name being a capital letter.,/Surname,/First alphabet
Authors	of name being a capital letter.,/Surname,/First alphabet of name being a capital
	letter.,/(Number 1-19 authors),/&/Surname,/First alphabet of name being a
	capital letter. (Number 20 author)
21 Authors	Surname,/First alphabet of name being a capital letter.,/(Number 1-19
or more	authors),/././Surname,/First alphabet of name being a capital letter. (The last
	author)

[&]quot;Figure 1" printed in Times New 12 point font face, bold letters, center of the page

[&]quot;Name of Figure, Chart..." printed in Times New 12 point font face, normal letters

[&]quot;Sources or Remarks:" printed in Times New 9 point font face, bold letters, left alignment

[&]quot;Details..." printed in Times New 9 point, normal letters

2.2 Format of Reference Based on Documents 2.2.1 Journals 1) Journal (Brinted)

1) Journal (Printed)

Kraikunasai, J., Chongcharoen, K., Ngudgratoke, S., & Pukchanka, P. (2017). A causal model of administrative factors affecting educational quality in vocational school. *Panyapiwat Journal*, 9(2), 171-184.

2) Journal (Electronic)

- Waehayee, N. (2014). Relationship between strategic performance based budgeting system and law on the budgetary procedures. *Jurisprudence Journal Naresuan University*, 7(2), 152-178. http://doi.org/10.14456/nulj.2014.9
- Sittichai, O., & Silcharu, T. (2021). Guidelines for creating competitive advantage for processed food industry cluster. *Panyapiwat Journal*, *13*(2), 12-26. https://so05.tci-thaijo.org/index.php/pimjournal/article/view/240994

2.2.2 Books 1) Book (Printed)

Surname,/First alphabet of name being a capital letter./(A.D. year)./Book title/(Edition)./Publisher.

- * In case of no publication date, put n.d.
- * In case of first edition, do not specify the edition.
- * In case of no specification of publisher, put n.p.

Ritcharoon, P. (2016). *Principles of measurement and evaluation*. House of Kermyst. Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper and Row.

2) Book (Electronic without DOI)

Surname,/First alphabet of name being a capital letter./(A.D. year)./Book title/(Edition)./URL

- * In case of no publication date, put n.d.
- * In case of first edition, do not specify the edition.
- * In case of no specification of publisher, put n.p.

Department of Primary Industries and Mines. (2017). *Benchmarking industrial logistics performance index supply chain performance index logistics scorecard*. https://dol.dip.go.th/files/article/attachments/dol/3e30ca4fc9f964feeb57fce3fc602c04.pdf

3) Chapter in a Book

Surname,/First alphabet of name being a capital letter./(A.D. year)./Title of chapter or article.///////In/First alphabet of editor's name being a capital letter/Surname/(Ed. or Eds.),/Book///////title/(pp./page numbers)./Publisher.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295-336). Lawrence Erlbaum Associates.

2.2.3 Thesis

1) Thesis (Printed)

Surname,/First alphabet of name being a capital letter./(A.D. year)./*Title of thesis*/[Master's thesis //////or Doctoral dissertation]./Name of educational institution.

Seangsri, W. (2009). An analysis and development of school network administration model in northeastern rural area [Doctoral dissertation]. Chulalongkorn University.

2) Thesis (Electronic)

First Format

Surname,/First alphabet of name being a capital letter./(A.D. year)./*Title of thesis*/[Master's thesis //////or Doctoral dissertation]./Name of website./URL

Lin, Q. (2020). the influence of music teachers' competence on job performance-moderator role of interactive behavior [Doctoral dissertation]. Panyapiwat Institute of Management Library. http://elibrary.pim.ac.th/Record/833578

Second Format

Surname,/First alphabet of name being a capital letter./(A.D. year)./*Title of thesis*/(UMI number or //////other numbers)/[Doctoral dissertation or Master's thesis,/Name of university]./Name of //////database.

Lope, M. D. (2014). Perceptions of global mindedness in the international baccalaureate middle years programme: The relationship to student academic performance and teacher characteristics (Order No. 3682837) [Doctoral dissertation, University of Maryland]. ProQuest Dissertations and Theses Global.

2.2.4 Research Report

Surname,/First alphabet of name being a capital letter./(A.D. year)./*Title*/(Report No. if given).//////Publisher./http://doi.org/xxxx or URL

National Cancer Institute. (2019). *Taking time: Support for people with cancer* (NIH Publication No. 18-2059). U.S. Department of Health and Human Services, National Institutes of Health. https://www.cancer.gov/ publications/patient-education/takingtime.pdf

2.2.5 Electronic Media

Surname,/First alphabet of name being a capital letter./(A.D. year,/month/date)./*Article title.*/////Name of website./URL

- * In case of no publication date, put n.d.
- * In case of only A.D. year appears, put only A.D. year
- * In case of the author's name and the website name being the same, cut the website name

- Minister of Tourism and Sport. (2020, January 9). *Bangkok flea markets: Adventurous shopping experience*. Tourism Thailand. https://www.tourismthailand.org/Articles/bangkok-flea-markets-adventurous-shopping-experience
- Millburn, J. F. (2021). *How to start a successful blog in 2021*. The minimalists. https://www.the minimalists.com/blog/

2.2.6 Articles/documents presented in academic conference (Proceedings)

Surname,/First alphabet of name being a capital letter./(A.D. year)./Title of article./In/First //////alphabet of the editor's name being a capital letter./Surname/(Ed. or Eds.),/*Name of ///////conference topic./Name of conference/*(pp./page numbers)./Name of database./ //////https://doi.org/xxxx or URL

Phinitchai, S., Nawaratana, N., & Tanthanuch, J. (2021). Distributional-based analysis for health care insurance claim data. In *Globalization revisited: Building organization resilience with digital transformation. The 4th PIM International Conference* (pp. 715-725). Panyapiwat Institute of Management. https://conference.pim.ac.th/zh/wp-content/uploads/2021/03/I-Social-Sciences-and-Humanities-Part-1.pdf

2.2.7 Documents for the Conference

Surname,/First alphabet of name being a capital letter./(A.D. year,/month/date)./Topic of //////conference./In/First alphabet of the Chair Person's name being a capital letter./Surname//////(Chair),/Name of conference/[Symposium]./Name of conference organizer,/Place of //////conference.

Wasi, N., Poonpolkul, P., & Thephasdin na Ayudhya, C. (2021, September 30). Policy design for coping with aging society. In N. Wasi (Chair), *Future world money: Developing Thai digital currency* [Symposium]. BOT Symposium 2021: Building a Resilient Thailand. Bank of Thailand. https://www.pier.or.th/conferences/2021/symposium/

2.2.8 Interview Documents

Surname,/First alphabet of name being a capital letter./(A.D. year,/month/date of the interview). //////Interviewed by/First alphabet of the interviewer's name being a capital letter./Surname //////[Tape recording]./Position of interviewee (If any),/Place of interview.

Chearavanont, S. (2021, September 30). Interviewed by N. Wanakijpaiboon [Tape recording]. Executive Chairman of Charoen Pokphand Group, Bangkok.

2.2.9 Newspapers 1) Newspaper (Printed)

Surname,/First alphabet of the author's name being a capital letter./(A.D. year,/month/date).///////Topic or article title./*Name of newspaper*,/first page-last page.

Sriwattanachai, R. (2014, October 24). The prefabricated generation of seasoning sauce market. *POST TODAY*, B3-B4.

2) Newspaper (Electronic)

Surname,/First alphabet of the author's name being a capital letter./(A.D. year,/month/date).///////Topic or article title./*Name of newspaper*./URL

Bangkok post and reuters. (2021, October 8). UK eases travel rules for countries including Thailand. *Bangkok Post*. https://www.bangkokpost.com/thailand/general/2194651/uk-eases-travel-rules-for-countries-including-thailand



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