# Journal of Global Business and Trade

Vol. 18 No. 4 August 2022



The Journal of Global Business and Trade

IAGBT

International Academy of Global Business and Trade

Journal of Global Business & Trade

Vol. 18 No. 4 August 2022

IAGBT

ISSN 1946-5130 (Print)
ISSN 2470-4733 (Online)

Journal of Global Business and Trade

Vol. 18 No. 4 August 2022


*Published by*
International Academy of Global Business and Trade

The Journal of Global Business and Trade

IAGBT
www.pfw.edu/jgbt

# Journal of Global Business and Trade

indexed and abstracted in **SCOPUS**

ISSN 1946-5130 (Print)
ISSN 2470-4733 (Online)


### About Journal

Journal of Global Business and Trade (JGBT) is the official publication of the International Academy of Global Business and Trade (IAGBT) and is published by IAGBT on a semiannual basis. JGBT is the leading peer-reviewed, scholarly journal that publishes research across the entire range of topics encompassing the domain of global business and trade.

JGBT aims to be a resource for the advancement of the theoretical foundations and the practical applications in the context of Asia-Pacific global business, trade and economy. The journal takes a broad perspective of the global economy by covering many vibrant sectors such as manufacturing, retailing, international trade, agricultural economy, tourism, and information technology, just to name a few. The journal will publish research papers, reports, and commentaries of significant interest to the community engaged in global business and trade. By being a conduit for sharing intellectual ideas and opinions among the academia and individual global industry sectors, the journal aims to bridge the gap between research and sound decision-making.

JGBT is the only business journal that highlights a diversity of perspectives through research papers, reports, and commentaries of significant interest to the international business and trade community.

JGBT enhances sound research through quick and constructive review of the manuscripts submitted.

JGBT aims to appeal to academics, government representatives, business major students, business and industry professionals, and trade organizations.

### ISO abbreviation of journal title

The official title of the journal is 'Journal of Global Business and Trade' and the abbreviated title is 'J. Glob. Bus. Trade'

### Year of launching (history)

Journal of Global Business and Trade was launched in 2005.

### Availability of the full-text in the web

Full text is freely available from: https://www.pfw.edu/jgbt


### Fund support

This journal was supported by the International Academy of Global Business and Trade.


### Index in database

The articles published in this journal are indexed and/or abstracted in SCOPUS, EBSCO, ProQuest, Exribris, and GoogleScholar.

### Subscription information

All correspondences regarding membership, subscriptions and changes of address should be sent to the society addressed as below:
International Academy of Global Business and Trade, 2101 E. Coliseum Boulevard, Fort Wayne, IN 46805, U.S.A. (Tel: 1.260.481.6794, Fax: 1.260.481.6879, E-mail: myeonghwan.kim@pfw.edu, Homepage: https://www.pfw.edu/jgbt). The annual subscription fees are free of charge.

### Submission

The IAGBT operates an on-line submission system. Details of how to submit online and full author instructions can be found at: https://www.pfw.edu/jgbt. Manuscripts should be submitted to the on-line submission system at http://www.jgbt.us following all prompts on the screen. Other correspondences can be sent by e-mail to the editor Myeong Hwan Kim at myeonghwan.kim@pfw.edu.

Peer review under responsibility of International Academy of Global Business and Trade.


## Journal of Global Business and Trade Volume 18, Number 4

Published 30 August 2022

### Publisher (Editorial office)

International Academy of Global Business and Trade founded in 2005,
2101 E. Coliseum Boulevard, Fort Wayne, IN 46805, U.S.A. (Tel: 1.260.481.6794, Fax: 1.260.481.6879,
E-mail: myeonghwan.kim@pfw.edu, Homepage: https://www.pfw.edu/jgbt).

## Editorial Staff

The Journal of Global Business and Trade (JGBT) editorial team is committed to providing subscribers with the best quality articles in a timely manner, ensuring a journal that subscribers will find stimulating and useful in their teaching and professional activities.

# Journal of Global Business and Trade

Vol. 18 No. 4 August 2022



The Journal of Global Business and Trade
IAGBT
www.pfw.edu/jgbt

ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.1

The Journal of Global Business and Trade

Journal of Global Business and Trade

https://www.pfw.edu/jgbt

# The Effect of the Behavioral Biases of Korean Invertors on Performance with Financial Literacy as a Moderator*

**Eun-Ha Ko[a], Sok-Tae Kim[b]****

[ab]*Department of International Trade, Dongguk University, South Korea*

*Received 7 June 2022, Revised 5 July 2022, Accepted 8 August 2022*

**ABSTRACT**

**Purpose –** The purpose of this study is to analyze how the behavioral characteristics of Korean individual investors affect investment performance.

**Design/Methodology/Approach –** Through the survey method, we tried to examine the behavioral bias characteristics and behavioral bias investment decisions on performance during the COVID-19 period. Multiple regression and SPSS PROCESS were used to find the effect of the behavioral characteristics and behavioral decisions on performance with financial literacy as the moderator.

**Findings –** As a result of multiple regression analysis, it was found that among the biased investment characteristics, overconfidence and mental accounting statistically affect investment results. In the analysis through the SPSS PROCESS model, the level of financial literacy was found to be significant as a moderating variable, and it was also found that biased investment decision plays a role as a mediating parameter in investment performance.

**Research Implications –** This study is meaningful in providing insight into the behavioral investment characteristics of individual investors by presenting an empirical analysis of the behaviorally biased characteristics and behaviorally biased investment decisions of individual investors on investment performance in Korea.

***Keywords:*** behavioral biases, behavioral finance, mediation, moderation
***JEL Classifications:*** G11, G40

* *This was supported by a Research Grant of Dongguk University (2022).*
** *Corresponding Author, E-mail: ted7@dgu.edu*

## I. Introduction

The 2020 COVID-19 outbreak has brought about a number of new phenomena around the world. Among them, the change in the investment behavior of retail Korean stock investors shows a notable peculiar tendency, unlike other investment behaviors observed in the past. According to data released in August 2021, investment activities have increased rapidly to the extent that the number of stock accounts has exceeded 50 million in Korea, and general investors are not staying in the domestic stock market, but expanding investment scope into overseas stock markets. This can be attributed to the results of corona crisis, along with IT development, and new investments in stocks as a new financial technique for young people, including those in their 20s (Lee et al., 2021).

It was found that individual investors that entered the stock market in 2020, when the corona outbreak occurred, made considerable profits due to the boom in the global stock market in the second half of 2020 (Kim, 2021). However, in 2021, when the corona virus continued, despite the rise of the market index, returns were less than the index, indicating that they experienced considerable difficulties in beating the market index. This phenomenon can be seen as indicating that individual investors differ from the investment behaviors of foreign and institutional investors (Kim, 2020).

In the recent COVID-19 crisis, individual investors alone maintain record buying in the highly volatile stock market. In addition, although indirect investment demand has been insignificant since the financial crisis, direct investment demand has been observed to be stronger. In addition to this, stock market standby funds are currently at a high level. For the time being, the buying trend of individual investors is expected to continue. Kim (2020) explained that irrational investment behaviors of individual investors are appearing through empirical analysis of individual investors. It is observed to be higher than that of the market portfolio, and there are many cases of facing tail risk because risk diversification through rational asset allocation is not properly implemented.

Traditional financial theory assumes that investors are rational people with reasonable expectations based on the economic view of human beings. According to this view, investors that do not make systematic mistakes and are not affected by emotional or psychological factors are called rational investors. In other words, according to traditional financial management theory, it is assumed that there is no significant difference between individual investment behavior and that of institutional investors, and that investors will take rational actions for utility maximization and risk aversion while looking at the market efficiently. Assuming that these traditional financial management theories do not provide an effective explanation for frequent anomalies and irrational investment behaviors of individuals in the market, behavioral financial management explains the market inefficiency and irrational behaviors of investors from various angles.

Behaviorist financial theory uses two hypotheses to derive the efficient market hypothesis, which is a new wave of financial theory that raises questions about rational investors and perfect arbitrage transactions. According to behavioral finance theorists, the expectations and behaviors of investors are influenced by psychological factors. As a result, investors make irrational decisions, and arbitrage activities are prevented from taking place in a market composed of investors that make irrational decisions. This can lead to discrepancies over time (Barber and Ordean, 1999; Hirshleifer, 2001).

Recently, overseas studies have been actively conducted on the behavioral investment decisions and investment performance of individual investors through empirical analysis of irrational investment behaviors (Katini and Nahda, 2021; Quddoos et al., 2020; Xiang, 2014; Zhang & Wang, 2015). In particular, various empirical studies have been reported on the existence of the behavioral biases of individual investors in the emerging stock market, and how they affect investment performance.

In Korea, while studies on traditional financial management have been conducted, there are very

few studies on the actual investment behavior of stock investors from the perspective of behavioral financial management. In this study, we try to empirically analyze the various psychological factors suggested by behavioral finance theory, along with investment behaviors and results caused by these factors.

This study is aimed at the retail stock investors that have increased rapidly during the period after the outbreak of the corona crisis. Also, based on psychology, this study examines how the behavioral biases of individual investors affect behavioral investment decisions and investment performance, and how control variables such as gender and moderating variables (financial literacy level) influence investment decisions and investment performance. We would like to analyze the role it plays in investment performance.

This study has academic significance in that it empirically analyzes the effect of behavioral bias on investment performance for the first time in Korea. The remainder of the study is organized as follows. Section II reviews the related literature. Section III describes data and methodology. Section IV reports the result of the analysis. Section V concludes.

## II. Literature Review

### 1. Traditional Finance

The field of finance has the following central paradigms: (i) portfolio allocation based on expected return and risk (Markowitz, 1952), (ii) risk-based asset pricing models such as the CAPM and other similar frameworks, (iii) the pricing of contingent claims, and (iv) the Miller-Modigliani theorem and its augmentation by the theory of agency. Also, Fama (1970) has introduced EMH (Efficient Market Hypothesis), which assumes that markets are efficient and investors are rational. These economic ideas were all derived from investor rationality (Subrahmanyam, 2007). While these approaches revolutionized the study of finance and brought rigor into the field, many anomalies were left outstanding by these theories. In classical economic theory, human psychology cannot be considered a factor affecting decisions (Subrahmanyam, 2007).

### 2. Behavioral Finance

Behavioral Finance is a study that explains the financial decision making of investors by limiting the decision making subjects of behavioral economics to investors. Behavioral finance discusses reasons why market participants make irrational systematic errors and the resulting market inefficiency based on psychology. In other words, behavioral finance starts from negating the basic assumptions of the traditional finance theory of efficient markets (Fama, 1970) and rational investors. Behavioral finance is also called behavioral finance and behavior-oriented finance (Hirshleifer, 2001).

Kahneman and Tversky (1979) wrote a paper titled “Prospect Theory: An Analysis of Decision Under Risk. This paper has been proven a valuable contribution in the field of behavioral finance as the fundamental concept of prospect theory was introduced. This theory explains the decision making processes of investors based on probabilistic alternatives involving risk when the probable outcome of investment decision is known. Thaler (1985) explained that investors make decisions under the influence of behavioral biases, often leading to less than optimal decisions. Thaler (1985) explained in his paper, “The End of Behavioral Finance”, that there are many puzzles in financial markets where theories of modern finance give no answer, and here the assumptions of behavioral finance are helpful in solving these puzzles.

Behavioral finance is largely divided into an area dealing with the psychology of individual decision makers and an area dealing with the limitations of arbitrage trading. The field of decision making psychology is to find the cause of irrationality, and it is further subdivided into cognitive errors resulting from incorrect reasoning and behavioral bias related to beliefs or preferences. Investors do not always process information correctly, and as a

result, cognitive dissonance that infers erroneous probability distributions about future returns may occur (Bell, 1982).

It is said that even if an abnormal market price is formed due to such irrational investors, if the market is efficient, the price will find its intrinsic value due to arbitrage traders. Behavioral financial management can be viewed as a field that attempts to examine anomalies in financial decision-making and analyze the causes of these phenomena from a psychological point of view (Hirshleifer, 2001).

Barberis and Thaler (2002) said that behavioral financial management consisted of two major fields, and classified behavioral finance into areas dealing with the limitations of arbitrage trading and with the psychology of individual decision makers, and reviewed the research results. The second component, the psychological field from a microscopic point of view, is largely composed of aspects related to personal beliefs and preferences, and based on this, provided explanations for investor behavioral decision-making (Barberis & Thaler, 2002).

Research in this field consists of reviews on the psychological working principle or structure that reveals how an individual's mind works, and through this process, it is possible to explain why financial-related judgments are prone to error. On the other hand, behavioral preference refers to the preference for risk and return, and in this regard, phenomena that cannot be explained by traditional expected utility theory are mainly dealt with. As a framework for analyzing this, there are prospect theory, regret theory, emotion theory, and self-control theory, and the main characteristics of prospect theory which play a key role in explaining these behavioral preferences.

Montier (2007) broadly classified behavioral bias into Self Deception, Heuristic Simplification, Emotion and Social, and divided it into various items in detail. Jain et al. (2019) argued that Representative Bias, Overconfidence, Anchoring Bias, Availability Bias, Regret Aversion, Loss Aversion, Mental Accounting, and Herding were major bias factors influencing investment decisions. In this paper, we take eight behavioral bias factors that affect investment decisions and investment performance as Jain et al. (2019) asserted.

# III. Hypotheses and Research Model

## 1. Hypotheses

### 1.1. Behavioral Bias Characteristics and Performance

Montier (2007) broadly classified behavioral bias into self-deception, heuristic simplification, emotion, and social, and divided them into various items in detail. Jain et al. (2019) argued that representative bias, overconfidence, anchoring bias, availability bias, regret aversion, loss aversion, mental accounting, and herding were major bias factors influencing investment decisions and performance. Chandra (2016) gave three central themes of behavioral finance: namely, heuristics and biases, emotions, self-attributes, and inefficient markets. From these central themes of behavioral finance, eight psychological biases are considered to be important. These eight bias characteristics (representativeness, overconfidence, anchoring, availability, regret aversion, loss aversion, mental accounting, and herding) will affect investor performance.

**H1:** Behavioral characteristics will affect performance.

### 1.2. Behavioral Bias Decision and Performance

Researchers in the field of behavioral finance like Anderson et al. (2005) posited that behavioral biases could be helpful in making investment decisions easily, and that investors are prone to different biases while making investment related decisions, and these decisions can result in either good or bad performance. Other researchers have shown similar results (Grinblatt and Keloharju, 2001; Jain et al., 2019; Hayat and Anwar,

2016; Kartini & Nahda, 2021; Novianggie and Asandimitra, 2019; Zhang & Wang, 2015).

In this study, we assume that the behavioral investment decisions of individual investors will affect investment performance.

**H2:** Behavioral decision will affect performance.

### 1.3. Financial Literacy as the Moderator between Behavioral Decision and Performance

Since the outbreak of COVID-19, the participation rate of individual investors in the stock market has increased worldwide. Individual investment fever continues in advanced securities markets such as the United States, Europe, and Japan, as well as emerging securities markets such as China and Korea. However, compared to institutional investors, individual investors are prone to rumors due to their inferiority in information and will make biased investment decisions because they respond to the market emotionally rather than systematically trading (Hayat and Anwar, 2016). It is very important to increase the level of financial knowledge in order to reduce investment mistakes caused by such biased investment decisions (Suer, 2007).

Therefore, it is necessary to study how the level of the financial knowledge of individual investors affects behavioral investment decisions and investment performance. According to Ates et al. (2016), behavioral bias factors influence investment decisions and, as a result, induce mistakes in investment decisions. It is reported that it is important to increase the level of financial knowledge in order to reduce the error of such biased investment decisions. Idris et al. (2013) said that the level of financial knowledge is an important factor that distinguishes the difference between investment decisions and investment performance.

**H3:** Financial literacy will act in a moderating role between behavioral characteristics and performance.

### 1.4. Behavioral Decision as the Mediator between Behavioral Characteristics and Performance

According to the Theory of Reasoned Action (TRA) asserted by Ajzen and Fishbein (1980), there is no perfect match between psychological intention and actual behavior, and actual behavior may appear different from psychological intention depending on various variables, but ultimately psychological intention argued that it influences actual behavior. The TRA model, a pioneering research model proposed by Ajzen and Fishbein (1980), is a widely accepted theory in the field of marketing based on psychology (Park & Choi, 2022).

This paper intends to investigate how biased investor characteristics and intentions will affect investment decisions using the TRA model, and to study how these biased investment decisions will affect investment performance. To this end, using biased investment decisions as a mediator, we analyze whether biased investor tendencies affect investment performance.

**H4:** Behavioral decision will act in a mediating role between behavioral characteristics and performance.

## 2. Research Model

### 2.1. Multiple Regression Model

Multiple regression analysis is an extension of simple regression analysis of a technique that analyzes the relationship between two or more independent variables and one dependent variable. This has the advantage of being able to simultaneously analyze the influence of independent variables on the dependent variable by inputting two or more independent variables into the regression model, and measures the intrinsic influence of a specific independent variable by measuring the partial association.

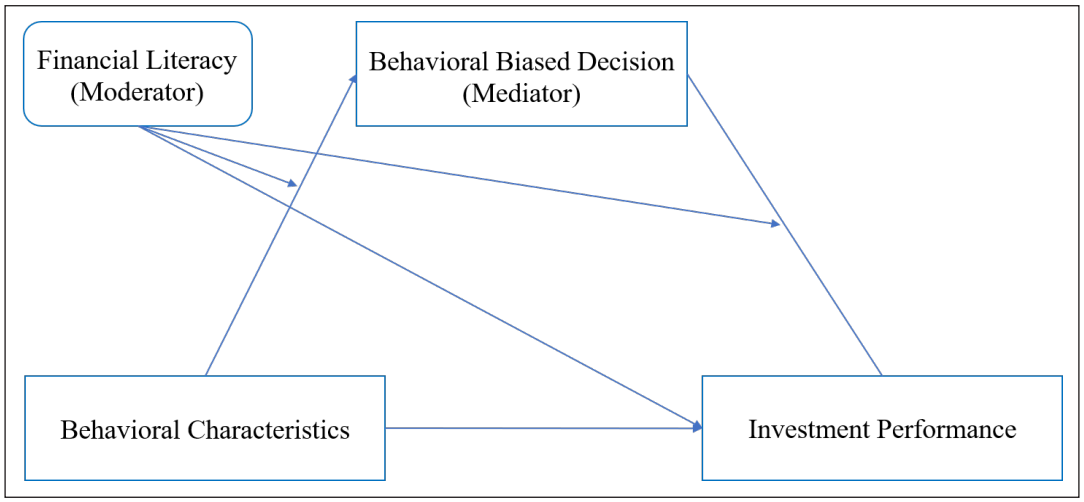
This study intends to analyze the influence of the behavioral bias factors of investors on their behavioral investment decisions and investment performance through multiple regression

analysis. First, as to the effect of behavioral bias on investment decisions (Model 1), an analysis that considers control variables (gender, age, marital status, education level) (Model 2), and a moderator variable (investor's level of financial literacy) including analysis (Model 3). Secondarily, the effect of behavioral investment decisions on investment performance (Model 1), control variables (gender, age, marital status, education level) are considered (Model 2), and adjustment variables (investor's level of financial knowledge) and the investor's experience will be further analyzed in Model 3.

### 2.2. Moderating and Mediating Model

Fig. 1 explains the moderating and mediating model between behavioral characteristics and performance. The bbehavioral characteristics of individual investors is the independent variable and performance becomes the dependent variable in the model.

**Fig. 1.** Moderator and Mediation Effect




## IV. Empirical Results

### 1. Data Collection

In this paper, in order to perform an empirical analysis of how the behavioral biases of individual investors affect investment decisions and performance, we conducted research analysis by analyzing survey responses from 360 people in a random way from July 1 to September 31, 2021.

In this paper, individual investor behavioral bias characteristics (heuristic bias and prospect theory bias), behavioral investment decisions, investment performance, financial knowledge, and demographic characteristics were classified and analyzed. The questionnaire responses were analyzed using a Likert 5-point scale method to analyze how behavioral bias affects investment performance.

### 2. The Effect of Behavioral Characteristics on the Performance

Table 1 shows how investor behavioral characteristics affect performance. Model 1 reveals that Overconfidence Characteristics positively affect performance at the $\alpha = 0.01$ level. However, Mental Accounting Characteristics

**Table 1.** Behavioral Characteristics Affecting Performance

| | Dependent Variable: Performance | | | | | |
|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 3 | |
| Independent Variables | $\beta$ | $p$-value | $\beta$ | $p$-value | $\beta$ | $p$-value |
| Intercept | -0.02896 | 0.9188 | 0.09735 | 0.7960 | -0.05577 | 0.8789 |
| Representativeness Characteristics | 0.00584 | 0.9045 | 0.01546 | 0.7442 | 0.03098 | 0.5007 |
| Overconfidence Characteristics | 0.87586 | <.0001** | 0.84601 | <.0001** | 0.75759 | <.0001** |
| Anchoring Characteristics | 0.04743 | 0.4696 | 0.02613 | 0.6803 | 0.04973 | 0.4197 |
| Availability Biased Characteristics | 0.03352 | 0.5962 | 0.01967 | 0.7511 | 0.00232 | 0.9692 |
| Loss Aversion Characteristics | 0.05372 | 0.3082 | 0.05257 | 0.3036 | 0.07212 | 0.1469 |
| Regret Characteristics | 0.04268 | 0.3581 | 0.07527 | 0.0969+ | 0.04613 | 0.2985 |
| Mental Accounting Characteristics | -0.1061 | 0.0343* | -0.1181 | 0.0153* | -0.1168 | 0.0135* |
| Herding Effect Characteristics | -0.0583 | 0.2647 | -0.0631 | 0.2145 | -0.07486 | 0.1323 |
| Gender | | | -0.2934 | <.0001** | -0.2041 | 0.0010** |
| Age | | | 0.00575 | 0.1392 | 0.00259 | 0.5149 |
| Marriage | | | 0.06095 | 0.3718 | 0.04440 | 0.5028 |
| Education | | | 0.04882 | 0.2706 | 0.01105 | 0.8023 |
| Experience | | | | | 0.03106 | 0.1983 |
| Financial Literacy | | | | | 0.17849 | <.0001** |
| $R^2$ | | 0.4853 | | 0.5267 | | 0.5587 |
| $\Delta R^2$ | | 0.4735 | | 0.5103 | | 0.5408 |
| F-value | | 41.36 | | 32.18 | | 31.19 |

Note: **$p$<.01, *$p$<.05, +$p$<.10.

**Table 2.** Biased Decision Factors on Performance

| | Dependent Variable: Performance | | | | | |
|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 3 | |
| Independent Variables | $\beta$ | $p$-value | $\beta$ | $p$-value | $\beta$ | $p$-value |
| Intercept | 0.55154 | 0.0474 | 0.92955 | 0.0194 | 0.65527 | 0.0907 |
| Representativeness Decision | 0.00909 | 0.8814 | -0.0065 | 0.9147 | -0.0355 | 0.5513 |
| Overconfidence Decision | 0.57819 | <.0001** | 0.56461 | <.0001** | 0.49684 | <.0001** |
| Anchoring Decision | 0.08879 | 0.1801 | 0.0888 | 0.1731 | 0.06173 | 0.3302 |
| Availability Biased Decision | -0.0421 | 0.4284 | -0.0660 | 0.2148 | -0.01375 | 0.7931 |
| Loss Aversion Decision | -0.1143 | 0.0256* | -0.0909 | 0.074+ | -0.0639 | 0.1971 |
| Regret Decision | -0.0061 | 0.8905 | 0.01575 | 0.7229 | -0.0088 | 0.8387 |
| Mental Accounting Decision | 0.1516 | 0.0061** | 0.13666 | 0.0120* | 0.12821 | 0.0160* |
| Herding Effect Decision | 0.06685 | 0.1783 | 0.04517 | 0.3624 | 0.03954 | 0.4097 |
| Gender | | | -0.2295 | 0.0006** | -0.1338 | 0.0497* |
| Age | | | -0.0013 | 0.7493 | -0.0038 | 0.3650 |
| Marriage | | | -0.0634 | 0.3872 | -0.0604 | 0.3951 |
| Education | | | 0.08401 | 0.0861+ | 0.04138 | 0.3963 |
| Experience | | | | | 0.0326 | 0.2171 |
| Financial Literacy | | | | | 0.20314 | <.0001** |
| $R^2$ | | 0.4156 | | 0.4406 | | 0.4803 |
| $\Delta R^2$ | | 0.4023 | | 0.4213 | | 0.4592 |
| F-value | | 31.21 | | 22.78 | | 22.77 |

Note: **$p$<.01, *$p$<.05, +$p$<.10.

affect negatively performance at the α = 0.05 level, and other characteristics do not show any significant effect on performance. Model 2 takes into account control variables such as gender, marriage, education, and investment experience. Specifically, the gender variable reveals a negative effect on performance, indicating that female investors perform better than male investors. Variables of Overconfidence Characteristics and Mental Accounting have a similar effect on performance as in Model 1. Model 3 shows that in addition to Overconfidence Characteristics, Mental Accounting, and Gender, Financial Literacy reveals a statistically positive effect on performance, indicating that as the level of financial literacy increases, performance increases. In Model 3, the adjusted R2 is 0.5408, indicating that performance is explained by the factors in Model 3.

## 3. Behavioral Decisions on the Performance

Table 2 shows how investor behavioral decisions affect performance. Model 1 reveals that the Overconfidence Decision positively affected performance at the α = 0.01 level. Also, Mental Accounting Decision affected positively performance at the α = 0.05 level, which shows a different result from Table 1. Other decisions do not show any significant effect on performance. Model 2 takes into account control variables such as gender, marriage, education, and investment experience. Specifically, the gender variable revealed a negative effect on performance, indicating that female investors perform better than male investors in spite of behavioral biases. The variables of Overconfidence Decision and Mental Accounting Decision have a similar effect on performance as in Model 1. Model 3 shows that Financial Literacy reveals a statistically positive effect on performance, indicating that as the level of financial literacy increases, so does performance. In Model 3, the adjusted R2 is 0.4803, indicating that performance is explained by the factors in Model 3.

## 4. Financial Literacy as a Moderator between Behavioral Characteristics and Performance

Baron and Kenny (1986) held that the moderator moderates the relationship and direction between independent variables and dependent variable (Li and Kim, 2021). Using SPSS PROCESS V3.5, we analyzed the model assuming overconfidence as the independent variable, performance as an dependent variable, and financial literacy as the moderator. The result shows the variable of Overconfidence*Financial Literacy positions between LLCI (0.038) and ULCI (0.436). This indicates that the variable is significant because it does not include zero. Also, since the p-value is 0.051, it is statistically significant at the α =0.10 level.

**Table 3.** Moderating Effect (Dependent Variable: Performance, Moderating Variable: Financial Literature)

| Dependent Variable Performance | R-sq: 0.4601 | | | | | |
|---|---|---|---|---|---|---|
| | coeff | se | t | p | LLCI | ULCI |
| Constant | 2.990 | 0.044 | 68.51 | .000 | 2.918 | 3.062 |
| Overconfidence Decision (M) | 0.583 | 0.061 | 9.492 | .000** | 0.481 | 0.684 |
| Financial Literacy (W) | 0.248 | 0.087 | 2.860 | 0.005** | 0.105 | 0.391 |
| Overconfidence* Financial Literacy | 0.237 | 0.121 | 1.965 | 0.051+ | 0.038 | 0.436 |

Note: **$p$<.01, *$p$<.05, +$p$<.10.

### 5. Mediation Effect

As a result of the significance test of each path in Table 4, it was found that overconfidence bias had a positively significant effect on investment decision-making and investment performance, and investment decision-making had a statistically significant effect on investment performance. There are both positive direct and indirect relationships between overconfidence characteristics and performance through overconfidence decision making. These show that the overconfidence decision plays is a mediator between overconfidence characteristics and performance.

**Table 4.** Paths from Overconfidence Characteristics to Performance through Overconfidence Decision

| Path | B | se | t | p | LLCL | ULCL |
|---|---|---|---|---|---|---|
| Overconfidence Characteristics → Overconfidence Decision | 0.792 | 0.049 | 13.30 | .000** | 0.696 | 0.887 |
| Overconfidence Characteristics → Performance | 0.644 | 0.062 | 10.46 | .000** | 0.523 | 0.764 |
| Overconfidence Decision → Performance | 0.292 | 0.051 | 5.76 | .000** | 0.193 | 0.392 |

Note: **$p$<.01, *$p$<.05, +$p$<.10.

## V. Summary and Conclusion

In this paper, we attempted to analyze the behavioral biases of individual investors participating in the Korean stock market through a random survey of investors that have invested in stocks. The effect of their biased characteristics and investment decisions on investment performance was studied. The statistical analysis results based on the survey are as follows.

First, hierarchical multiple regression analysis was performed to analyze the effect of biased investment decisions on investment performance. Among the bias factors, overconfidence and mental accounting showed positively significant results on investment results. In many similar previous studies, overconfidence was predominantly mentioned, and it was found that Korean individual investors are also affected by overconfidence bias, and it has a positive effect on investment performance. In addition, it was found that gender and financial knowledge level had a statistically significant positive effect on performance. This is consistent with the first result that gender differences and financial knowledge level affect investment performance.

Second, when overconfidence, a major behavioral bias factor, was used as an independent variable and financial knowledge level was a moderator variable, a moderating effect could be found to be statistically significant. These results are consistent with the results of previous studies (Jain et al., 2019) that studied knowledge level as a moderating variable.

Fourth, using SPSS PROCESS v3.5 Model 4 to analyze direct and indirect effects on investment performance with the behavioral characteristics of investors as independent variables and behavioral investment decisions as mediating parameters using SPSS PROCESS v3.5 Model 4, all indirect effects were found to be statistically significant, and a mediation effect could be found. The results of this study have important implications both academically and in financial investment practices. Academically, it is the first in Korea to analyze the moderating effect of the financial knowledge level of individual investors that are

biased, and to study how the bias characteristics of investors affect actual investment decisions and investment performance. It is meaningful in that it investigated the importance of service development in consideration of the various behavioral biases of individual investors that have rapidly increased since the outbreak of Covid-19.

This study also has some limits. First, since it is a survey based study that reflects a certain phase of the stock market, it is hard to generalize the results. An intertemporal study may mitigate this limit. Second, a small number of respondents compared with a large pool of investors may induce some bias in the results due to the small size of the respondents. These limits should be resolved in the future study with intertemporal study and a more diverse survey data base.

## References


Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Prentice-Hall.

Anderson, A., Henker, J., & Owen, S. (2005). Limit order trading behavior and individual investor's performance. *The Journal of Behavioral Finance*, *6*(20), 71-89.

Ates, S., Coskun, A., Sahin, M., & Demircan, M. (2016). Impact of financial literacy on the behavioral biases of individual stock investors: Evidence from Borsa Istanbu. *Business and Economics Research Journal*, *7*(3), 1-19.

Barber, B. M., & Odean, T. (1999). The courage of misguided convictions. *Financial Analysts Journal*, *21*(3), 41-55.

Barberis, N., & Thaler, R. (2002). *A survey of behavioral finance* (NBER Working Paper No. 9222). NBER, 1-27.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Bell, D. E. (1982). Regret in decision making under uncertainty. *Operation Research*, *30*, 961-981.

Chandra, P. (2016). *Behavioral Finance.* McGraw Hill India.

De Bondt, F. W., & Thaler, R. (1985). Does the stock market overreact?. *Journal of Finance*, *40*(3), 793-805.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, *25*(2), 383-417.

Grinblatt, M., & Keloharju, M. (2001). The investment behavior and performance of various investor types: A study of Finland's unique data set. *Journal of Financial Economics*, *55*(1), 43-67.

Hayat, A., & Anwar, M. (2016). *Impact of behavioral biases on investment decision moderating role of financial literacy.* SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2842502

Hirshleifer, D. (2001). Investor psychology and asset pricing. *Journal of Finance*, *56*, 1533-1597. http://doi.org/10.2139/ssrn.284250

Idris, F., Krishnan, K., & Azmi, N. (2013). Relationship between financial literacy and financial distress among youths in Malaysia: An empirical study. *Goegrafia*, *9*, 106-117.

Jain, J., Walia, N., & Gupta, S. (2019). Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process. *Review of Behavioral Finance*, *12*(3), 297-314. https://econpapers.repec.org/article/emerbfpps/rbf-03-2019-0044.htm

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*(2), 263-292.

Kartini, K., & Nahda, K. (2021). Behavioral biases on investment decision: A case study in Indonesia. *Journal of Asian Finance, Economics and Business*, *8*(3), 1231-1240.

Kim, J. S. (2021). Individual investors' trading behavior in COVID-19 period. *Korea Capital Market Institute*, *4*, 11-35.

Kim, M. (2020). A study on the behavioral bias and investment attitude of domestic retail investors. *Korea Capital Market Institute*, 3-71.

Lee, D., Kang, J., & Maeng, S. (2021). A study on the experience of young stock investors' debt investment: A grounded theory approach. *Journal of Future and Social Work Research Work*, *12*(1), 127-160.

Li, X., & Kim, Y. (2021). A study on the impact of financial flexibility on corporate value: Moderating effects based on evnironmental uncertainty and agency costs. *Journal of International Trade & Commerce, 17*(6), 17-32.

Markowitz, H. (1952). Portfolio selection. *The Journal of Finance*, *7*(1), 77-91.

Montier, J. (2007). *Behavioural investing a practitioners guide to applying behavioural finance*. John Wiley & Sons.

Novianggie, V., & Asandimitra, N. (2019). The influence of behavioral bias, cognitive bias, and emotional bias on investment decision for college students with financial literacy as the moderating variable. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *9*(2), 99-107.

Park, H., & Choi, H. (2022). The mediation effect of female customer orientation on the relaionship between womenomics and product sales. *Journal of International Trade & Commerce, 18*(1), 105-115.

Quddoos, M., Rafique, A., Kalim, U., & Sheikh, M. (2020). Impact of behavioral biases on investment performance in Pakistan: The moderating role of financial literacy. *Journal of Accounting and Finance in Emerging Economies*, *6*(4), 1199-1205.

Subrahmanyam, A. (2007). Behavioral finance: A review and synthesis. *European Financial Management*, *14*(1), 12-29.

Suer, O. (2007). An empirical study about the determination of eisk behavior in investment decisions, *Oneri, 7*(28), 97-105.

Thaler, R. (1985). Mental accounting and consumer choice. *Marketing Science*, *4*(3), 199-214.

Xiang, C. Y. (2014). The influence of behavioral factors in making investment decisions and performance: Study on investors of colombo stock exchange, Sri Lanka. *Asian Journal of Finance and Accounting*, *6*(1), 1-23.

The Journal of Global Business and Trade

ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.13

Journal of Global Business and Trade

https://www.pfw.edu/jgbt

# A Study of Mobile Short Video Brand Experience on User Loyalty

**Lu Zheng[a], Yeong-Gil Kim[b]***

[a]*Department of Business Administration, Shandong College of Economics and Business, China*
[b]*Department of Global Trade and Management, Shinhan University, South Korea*

*Received 24 May 2022, Revised 5 July 2022, Accepted 5 August 2022*

**ABSTRACT**

**Purpose –** This study examines how to meet the needs of users, improve user satisfaction, form user loyalty, and obtain greater user retention.

**Design/Methodology/Approach –** This study selects users on mobile short video platforms as the research object, and conducts research from the new perspective and field of brand experience of short video application, using user loyalty theory as a framework to study the relationship between brand experience, user satisfaction, brand personality, and loyalty to test the mediating role of user satisfaction, and to explain the moderating role of brand personality in each variable.

**Findings –** All brand experience positively influences user satisfaction. User satisfaction positively influences user loyalty. Brand experience positively influences user loyalty. User satisfaction plays a mediating role in the relationship between brand experience and user loyalty. Brand personality positively moderates the influence of brand experience on user loyalty. Brand personality positively regulates the mediating role of user satisfaction in the relationship between brand experience.

**Research Implications –** The study puts forward some management suggestions and user promotion marketing suggestions for mobile short video companies to gain a place in the short video market.

***Keywords:*** brand experience, brand personality, user loyalty, user satisfaction
***JEL Classifications:*** C10, C40, E10, G10

* *Corresponding Author, E-mail: kyk3933@163.com*

## I. Introduction

Mobile short-video apps first appeared in the United States and grew in popularity. Socialcam was launched in February 2011. Viddy released a mobile short video social application product in April 2011, and introduced the concept of the "video sharing community" for the first time (He, 2018). Among these, the most representative are the short video sharing software Vine and the photo sharing application Instagram. Twitter launched Vine in 2013, and its users could share synchronously with each other by shooting short 6-second videos. Instagram also started the exploration of short video social applications in 2013. In addition, there are many similar foreign short videos such as Givit, Threadlife, and Keek. (Chernova, 2013).

Compared to foreign short video applications, China's short video industry started later, but it is developing fast and is currently in a period of rapid growth. According to the 49th Statistical Report on the Development of the Internet in China released by the China Internet Network Information Center (CNNIC, 2022), as of December 2021, the number of Chinese Internet users reached 1.032 billion, an increase of 42.96 million compared to December 2020, and the Internet penetration rate reached 73.0%, an increase of 1.2 percentage points compared with December 2020. The size of China's mobile Internet users reached 1.029 billion, an increase of 43.73 million from December 2020, and the proportion of Internet users using cell phones to access the Internet was 99.7%. One billion users have access to the Internet, forming the world's largest and most vibrant digital society. There are 934 million short video users, up 60.8 million from December 2020, accounting for 90.5% of Internet users as a whole, and it is expected that by December 2022, the scale of short video users will reach 985 million, and the usage rate will reach 92.4%. Short video is becoming a new form of entertainment for all.

According to the "Short Video User Value Research Report 2021" (Recordtrend, 2021) released by CSM Media Research, the epidemic in 2020 catalyzed the acceleration of short video penetration, and 72.8% of Internet users will watch short videos as "leisure" to spend weekend time, and in 2021, the in the preset scenario of "how to enrich your weekend leisure time", 50.5% of Internet users choose watching short videos as the "only" leisure and entertainment. In the post-epidemic era, Internet user demand for other forms of entertainment has rebounded, but short videos are still strong in harvesting user time and attention. In terms of specific usage time, the average daily viewing time of short videos exceeded 60 minutes, accounting for 56.5% of users, and the per capita daily usage time rose to 87 minutes. Short video e-commerce ecology continues to optimize, and 97.2% of user experiences significantly improved.

Short video has the characteristics of "complicated categories, all-inclusive, short and concise, shallow expression" and so on to attract new users. At present, short video industry scale growth is slowing, but it is still a new traffic pool for mobile Internet development. From the platform point of view, the diversity of users using short video platforms adds to the difficulty of competition: how to make products stand out among the many mobile short video applications and win a competitive advantage. Ultimately, it lays meeting user needs, improving user satisfaction, forming user loyalty, and gaining user retention.

At present, the traditional field of user satisfaction and loyalty is relatively mature, but mobile short video research is mainly concentrated in the past three years, and research results obviously lag behind the rapid development of the industry. The research on brand experience mainly focuses on the antecedent variables of brand experience, or what factors can influence brand experience. At present, research on brand experience at the consumer level is still relatively weak, especially for the short video industry, and there are many practical problems plaguing short video companies in terms of the impact of brand experience on consumer response in marketing practice, and research on the impact of brand experience on consumer response in the context of the short video industry lags from the theoretical

point of view.

Therefore, this paper focuses on four dimensions of brand experience (emotional experience, sensory experience, thinking experience, and behavioral experience) to study and analyze the impact on short video user loyalty. Based on value matching theory and utility maximization theory, this paper further explores the mechanism of the influence of brand experience on consumer response in the context of the short video industry, or the mediating role of user satisfaction, and at the same time, explores the moderating role played by brand personality as a variable reflecting short video contextual factors. It reveals the influence of brand experience on consumer response in consumers, increases the stickiness of platform users, further deepens and improves relevant theories in the field of brand experience in the context of the short video industry, and enhances the market competitiveness of short video enterprises (Xu, 2018).

## II. Related Theories

### 1. Brand Experience and User Satisfaction

Brand experience is a product of combining the new marketing concept of experience with brand research in the context of branding, and it is an organic combination of the experience economy and brand building. For the definition of brand experience, scholars Alba and Hutchinson (1987) believed that brand experience was the process of consumer familiarity with a brand, which is more meaningful than product experience, and can promote trust. Ha and Perks (2005) defined brand experience as "consumers' perceptions of certain websites" through a study of online brand experience. The most authoritative is Brakus et al. (2009), who proposed the concept of brand experience by combing the knowledge of philosophy, cognitive science, marketing, and applied management. They believed that brand experience was the subjective internal reaction (such as sensation, feeling, cognition, etc.) and the external reaction of consumers caused by brand-related stimuli (such as brand design, brand identity, packaging, communication, and environment), which could be specifically divided into four aspects: sensation, emotion, thinking, and behavior. Cleff et al. (2014) also believed that brand experience was a subjective response and the behavioral performance of consumers to brand identity, brand design, brand activities, and other related stimuli.

Scholar Zhang (2003) pointed out that brand experience was a consumer reaction to the personification of a corporate brand. By focusing on the brand experience of consumers in virtual brand communities, Li (2014) argued that brand experience was actually the psychological and emotional state of consumers that interacted with a brand through brand-related themes at different touch points, such as the brand, company, and other consumers. Taking Xiaomi community as an example, Yu and Zhao (2018) believed that brand experience was generated during consumer interactions with the company when they purchased products and services, and is a comprehensive and holistic experience of a brand by consumers.

By combing relevant literature at home and abroad, we find that different scholars have differences in their views. However, most scholars agree that brand experience is a personal feeling through the contact between consumers and brands, and the interaction between the two parties. Therefore, combined with previous research on brand experience, this paper draws on Brakus et al.'s definition and divides brand experience into four experience dimensions: sensory, emotional, thinking, and behavioral. Sensory experience is the most basic, which refers to the visual, auditory, olfactory, gustatory, and taste stimuli provided by the brand. Emotional experience refers to the emotional resonance that users have after contacting a brand. Thinking experience refers to the experience of the brand that attracts users to think divergently and stimulates creativity, fantasy, association, and curiosity, and expands attempts at basic knowledge. Action experience refers to the experience of users interacting with

the brand, including physical experience and lifestyle (Brakus et al., 2009).

Satisfaction is a concept of continuous interest in marketing since Cardozo first introduced the concept of customer satisfaction in 1965. Howard and Sheth (1969) considered customer satisfaction the result of comparing the cost paid with the expected benefit. That is, the difference obtained by comparing prior expectations with the perceptions brought about by the actual product or service. User satisfaction is an emotional reflection, and this reaction mainly comes from the surprise from a buying experience (Oliver, 1981). Kotler (2003) stated that satisfaction is a feeling described by a customer comparing the perceived effect of a product with its expectations.

Therefore, in this paper, short video user satisfaction is defined as user satisfaction or dissatisfaction with a short video platform after using it. It is the differential evaluation of the platform formed by users based on multiple experiences.

When Ha and Perks (2005) studied shopping behavior in an online marketing context, an empirical data analysis verified that brand experience could significantly influence satisfaction. Experience value has an impact on post-purchase behaviors such as overall satisfaction and propensity to repurchase (Zheng, 2002). Based on the above analysis, the following hypotheses are proposed.

**H1:** Brand experience positively affects user satisfaction.
**H1a:** Emotional experience positively affects user satisfaction.
**H1b:** Sensory experience positively affects user satisfaction.
**H1c:** Thinking experience positively affects user satisfaction.
**H1d:** Behavioral experience positively affects user satisfaction.

## 2. User Loyalty

The study of user loyalty started as early as the 1920s. By combing through literature related to user loyalty, we found that the definition of user loyalty was mainly elaborated upon in three aspects, which are behavioral loyalty, attitudinal loyalty, and integrated consideration of behavior and attitude.

In terms of behavioral loyalty, Tucker (1964) argued that consumer psychology has great uncertainty and only consumer behavior can describe customer loyalty to products, so user loyalty can be understood as a continuous purchase behavior (purchasing more than three times). Scholar Wang (2011) undestood user loyalty as an estimation of customer behavior, a specific quantification of customer loyalty in terms of the number of purchases, frequency, re-purchase behavior, type of purchase, and purchase order.

In terms of attitudinal loyalty, Dick and Basu (1994) suggested that in addition to repetitive purchase behavior, customer loyalty to a brand must be demonstrated by a strong and persistent positive attitude toward the brand. Xue and Dong (2018) argued that after being stimulated by a brand, consumers will prefer that brand due to the cognitive processing of the brand, and thus repeat purchase behavior will occur.

In terms of integrated behavioral and attitudinal considerations, Oliver (1999) integrated the two dimensions of loyalty behavior and attitude, and argued that "even when the environment changes, even in the face of promotions from other firms, consumers are still willing to commit to the firm that they will buy or use the goods and services that the consumer previously preferred again in the future, forming repetitive purchase behavior for the same brand behavior". This loyalty covers intentional loyalty, cognitive loyalty, behavioral loyalty, and emotional loyalty. Lv (2016) pointed out that companies increase customer loyalty by adding a more favorable product and marketing experience, and making the brand more connotative by increasing the customer sensory as well as thinking experience, such that customers have a deeper awareness of the brand.

Therefore, based on the definition of user loyalty by scholars, this paper defines short video user loyalty as users who are willing to repeatedly use a short video platform and voluntarily

recommend the platform to friends, even though they are faced with many products and services provided by short video companies.

Fornell et al. (1996) suggested that if consumers were satisfied with a product or service, the likelihood of consuming or experiencing it again rises, thus forming consumer loyalty. In the ASCI model, user satisfaction is directly influenced by perceived value, which in turn has a direct impact on user loyalty.

Al-Awadi (2002) and Sumino and Harada (2004) agree that brand experience directly affects brand loyalty, and the two are directly related. Wei and Wu (2012) used three different brands as examples to confirm that brand experience positively affects brand trust and brand loyalty. Bian et al. (2012) empirically analyzed the effect influence of brand experience on brand loyalty in the restaurant industry.

In addition, the relationship between brand experience and user satisfaction was analyzed in the previous paper, and it can be seen that brand experience drives customer satisfaction, and when user satisfaction increases, loyalty is also enhanced, and both user satisfaction and loyalty are positively correlated. Based on the above analysis, the following hypotheses are proposed.

**H2:** User satisfaction positively affects user loyalty.
**H3:** Brand experience positively affects user loyalty.
**H3a:** Emotional experience positively affects user loyalty.
**H3b:** Sensory experience positively affects user loyalty.
**H3c:** Thinking experience positively affects user loyalty.
**H3d:** Behavioral experience positively affects user loyalty.

**H4:** User satisfaction plays a mediating role in the relationship between the influence of brand experience on user loyalty.
**H4a:** User satisfaction plays a mediating role in the relationship between the influence of emotional experience on user loyalty.
**H4b:** User satisfaction plays a mediating role in the relationship between the influence of sensory experience on user loyalty.
**H4c:** User satisfaction plays a mediating role in the relationship between the influence of thinking experience on user loyalty.
**H4d:** User satisfaction plays a mediating role in the relationship between the influence of behavioral experience on user loyalty.

## 3. Brand Personality

From the functional perspective, Blackston (1992) defined the connotation of brand personality as the description of brand anthropomorphism; a brand is inanimate, but it can be artificially given human characteristics to make it symbolic, and brand personality is the anthropomorphism of a brand. From the performance perspective, the most representative and most recognized definition is the one proposed by Aaker in 1997. From the perspective of expression, the most representative and recognized definition is the one proposed by Aaker in 1997 (Aaker, 1997), which states that brand personality is a collection of human characteristics associated between the brand and the brand user, and that brand personality is essentially human personality, which has value only when it is recognized by consumers. From the perspective of environment, Shank and Lynn (1994) believed that brand personality came from the stimulus-response process of brand characteristics and consumers in the market environment.

From the environmental perspective, Shank and Lynn (1994) believed that brand personality came from brand characteristics and the stimulus-response process of consumers in the market environment. Through repeated use of short video platforms, the perception of brand personality will be continuously reinforced, thus forming consumption preferences.

Keng et al. (2013) showed that brand experience can positively influence the value of customer experience, and also influenced it through brand personality. Zhang (2016) empirically analyzed that brand personality had a significant positive

impact on brand experience (sensory experience, emotional experience, thinking experience, behavioral experience, and associative experience).

Magin et al. (2003) showed that brand personality had a positive effect on brand loyalty; brand personality helps consumers form brand loyalty. Brakus et al. (2009) showed that brand experience can have a direct effect on consumer satisfaction and loyalty, as well as an indirect effect on both through brand personality. In many cases, a lack of brand personality can lead to poor user experience, and even affect the achievement of user loyalty. Therefore, it is necessary to explore the moderating role of brand personality in the relationship between brand experience and user loyalty. Based on the above analysis, the following hypothesis is proposed.

**H5:** Brand personality plays a positive moderating role in the process of a brand experience's influence on user loyalty.

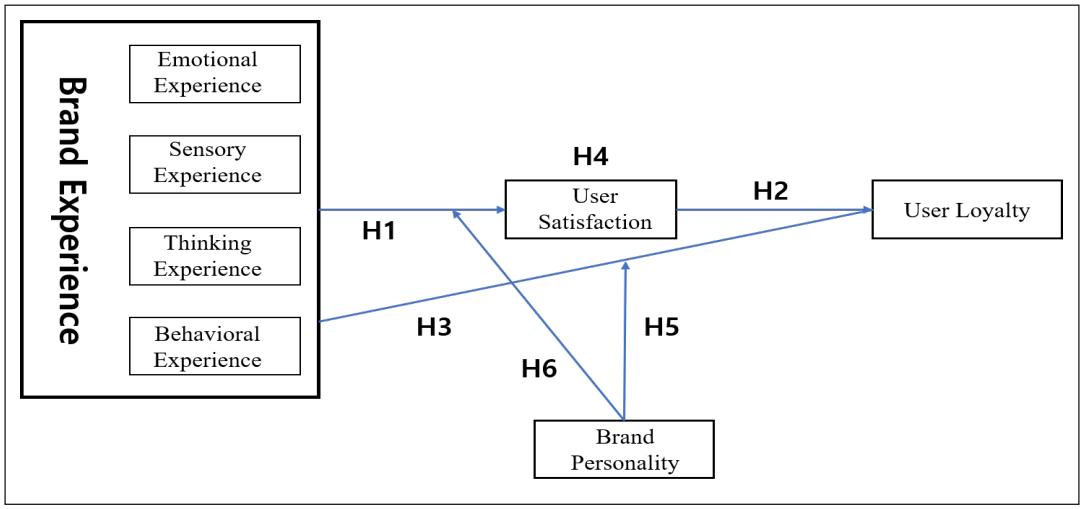
Brand personality can have an important impact on consumer satisfaction, and plays an important role in the process of consumer brand choice (Grubb, 1997). Research shows that the brand personality that shopping centers bring to consumers can have an impact on satisfaction (Kim et al., 2015). Brakus et al. (2009) found that brand personality had an indirect impact on consumer satisfaction.

From the previous hypothesis, it is clear that brand experience promotes user loyalty through the mediating mechanism of user satisfaction, and brand personality plays a moderating role in the relationship between brand experience and user loyalty, while brand personality positively influences user satisfaction. According to Wen and Ye (2014), this mediating effect is also able to be moderated when the first half or the second half of the mediating path is moderated by the moderating variable; the mediating effect will differ at different levels of the moderating variable. In summary, brand personality may moderate the whole mediating mechanism of brand experience-user satisfaction-user loyalty; there is a mediating mechanism that is further moderated. Therefore, this study proposes the following research hypothesis.

**H6:** Brand personality positively moderates the mediating role of user satisfaction between brand experience and user loyalty

The research model of this study is shown in Fig. 1.

**Fig. 1.** Research Model



Based on the stimulus-organism-response (SOR) framework, when consumers choose a brand, they will have a comprehensive perception and feeling of the brand via the different experiences provided by the brand. When consumers realize that the image presented by the brand is consistent with their self-perceived values, they will feel satisfied with the brand, leave a good impression, and will establish a positive emotional relationship with the brand, thus creating loyalty.

## III. Research Design

### 1. Questionnaire Design

The research questionnaire was designed by referring to the mature scale for the questions related to the variables, while making appropriate modifications in the context of the research of this paper. The questionnaire involved in this paper mainly includes four parts: screening questions, the current situation of mobile short video usage, key questions, and basic information, among which the main questions mainly include the information survey of independent variable brand experience, mediating variable user satisfaction, moderating variable brand personality, and dependent variable user loyalty. Among these, the independent variable brand experience includes 20 items of emotional experience, sensory experience, thinking experience, and behavioral experience. The mediating variable user satisfaction and moderating variable brand personality have 8 items. The dependent variable user loyalty has 5 items, and the items of the scale adopt the Likert (Likert) 5-level scale most often used in social surveys.

### 2. Research Subjects, Sample Distribution, and Data Collection

The target population of this questionnaire covers users of short video platforms of different genders, ages, education levels, and income status. Tencent questionnaire.com was used as the main form of questionnaire distribution, and the invalid questionnaires were screened and eliminated by computer, which greatly reduced labor and time. The questionnaires were distributed from March 10, 2022 to April 4, 2022, and 225 questionnaires were returned, including 183 valid questionnaires and 42 invalid questionnaires, with a valid recovery rate of about 81.3%.

### 3. Descriptive Statistics

**Table 1.** Descriptive Statistics

| Demographic Characteristics | Options | Number of People | Percentage |
|---|---|---|---|
| Sex | Male | 64 | 35 |
| | Female | 119 | 65 |
| Age | Under 20 | 46 | 25.1 |
| | 20-30 | 74 | 40.4 |
| | 30-40 | 42 | 23 |
| | 40-50 | 12 | 6.6 |
| | Over50 | 9 | 4.9 |
| Education | Junior high school and below | 0 | 0 |
| | High School | 4 | 2.2 |
| | Senior High School | 65 | 35.5 |
| | University undergraduate | 72 | 39.3 |
| | Master's degree and above | 42 | 23 |

| Demographic Characteristics | Options | Number of People | Percentage |
|---|---|---|---|
| Income | Less than 1000 RMB | 16 | 8.7 |
| | 1000-3000RMB | 23 | 12.6 |
| | 3000 -5000 | 32 | 17.5 |
| | 5000-8000RMB | 64 | 35 |
| | 8000-10,000 | 28 | 15.3 |
| | 10000 or more | 20 | 10.9 |
| Frequently Used Mobile Short Video | Racer | 112 | 61.2 |
| | ShakeYin | 166 | 90.7 |
| | Watermelon | 7 | 3.8 |
| | Microvision | 13 | 7.1 |
| | Goodwatch | 12 | 6.6 |
| | B site | 50 | 27.3 |
| | Other | 30 | 16.4 |
| Browsing Time per Day | Less than 1hour | 35 | 19.1 |
| | 1-2 hours | 53 | 29 |
| | 2-3 hours | 34 | 18.6 |
| | More than 3 hours | 61 | 33.3 |
| Frequency of Use | 3 times a day or more | 116 | 63.4 |
| | 1-2 times per day | 53 | 29 |
| | 1 time in 2-3 days | 3 | 1.6 |
| | 1 time in 4-7 days | 2 | 1.1 |
| | 2-3timesin 1 month | 0 | 0 |
| | Other | 9 | 4.9 |
| Time Spent Using Mobile Short Video | Less than 3 months | 12 | 6.6 |
| | 3 months to 6months | 5 | 2.7 |
| | 6 months to 1 year | 9 | 5 |
| | 1 year to 2 years | 31 | 16.9 |
| | 2 years to 3 years | 31 | 16.9 |
| | 3 years and above | 95 | 51.9 |
| Genre | Current affairs news | 117 | 63.9 |
| | Life/food/health | 150 | 82 |
| | Entertainment/film/music | 156 | 85.2 |
| | Financial Information | 57 | 31.1 |
| | Technology/IT/MobileDigital | 73 | 39.9 |
| | Travel and Tourism | 102 | 55.7 |

# IV. Empirical Analysis

## 1. Confidence Analysis

According to the above table, the reliability coefficients of emotional experience, sensory experience, thinking experience, behavioral experience, user satisfaction, user loyalty, and brand personality are 0.914, 0.906, 0.886, 0.887, 0.909, 0.887, and 0.854 respectively, all of which are greater than 0.8, indicating better internal consistency and higher reliability.

**Table 2.** Cronbach's Reliability Analysis

| Number of Items | Number of Items | Cronbach Alpha Coefficient |
|---|---|---|
| Emotional Experience | 5 | 0.914 |
| Sensory Experience | 5 | 0.906 |
| Thinking Experience | 5 | 0.886 |
| Behavioral Experience | 5 | 0.887 |
| User Satisfaction | 4 | 0.909 |
| User Loyalty | 5 | 0.887 |
| Brand Personality | 4 | 0.854 |

## 2. Validity Analysis

From the above table, it can be seen that all study items correspond to a common degree value higher than 0.4, which indicates that the information of the study items can be extracted effectively. In addition, the KMO value is 0.909, which is greater than 0.6, and the data can be extracted from the information effectively. In addition, the variance explained values of the seven factors were 11.552%, 11.466%, 10.963%, 10.778%, 9.754%, 9.591%, and 8.917% respectively, and the cumulative variance explained after rotation was 73.021% > 50%. It means that the information content of the study items can be extracted effectively. Meanwhile, the factor and question item correspondence is consistent with the expected division of the article, and the factors are all greater than 0.5, indicating that the questionnaire has good structural validity.

**Table 3.** Results of Validity Analysis

| Name | Factor Loading Coefficient | | | | | | | Commonness |
|---|---|---|---|---|---|---|---|---|
| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 | |
| EE1 | 0.212 | 0.695 | 0.130 | 0.175 | 0.239 | 0.176 | 0.102 | 0.674 |
| EE2 | 0.212 | 0.862 | 0.061 | 0.093 | 0.142 | 0.164 | 0.202 | 0.888 |
| EE3 | 0.251 | 0.694 | 0.177 | 0.117 | 0.210 | 0.166 | 0.143 | 0.682 |
| EE4 | 0.138 | 0.751 | 0.182 | 0.202 | 0.081 | 0.197 | 0.164 | 0.729 |
| EE5 | 0.296 | 0.754 | 0.087 | 0.154 | 0.174 | 0.191 | 0.185 | 0.789 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SE1 | 0.684 | 0.326 | 0.004 | 0.123 | 0.190 | 0.236 | 0.169 | 0.710 |
| SE2 | 0.865 | 0.162 | 0.088 | 0.103 | 0.085 | 0.169 | 0.156 | 0.853 |
| SE3 | 0.763 | 0.178 | 0.106 | 0.160 | 0.166 | 0.103 | 0.099 | 0.699 |
| SE4 | 0.746 | 0.173 | 0.132 | 0.175 | 0.128 | 0.175 | 0.032 | 0.682 |
| SE5 | 0.791 | 0.187 | 0.156 | 0.098 | 0.166 | 0.156 | 0.085 | 0.755 |
| TE1 | 0.092 | 0.166 | 0.855 | 0.085 | 0.120 | 0.172 | 0.186 | 0.853 |
| TE2 | 0.083 | -0.052 | 0.781 | 0.185 | 0.116 | 0.119 | 0.136 | 0.699 |
| TE3 | 0.191 | 0.096 | 0.772 | 0.085 | 0.112 | 0.104 | 0.057 | 0.676 |
| TE4 | 0.031 | 0.309 | 0.724 | 0.077 | 0.039 | 0.148 | 0.114 | 0.663 |
| TE5 | 0.063 | 0.067 | 0.756 | 0.151 | 0.126 | 0.151 | 0.082 | 0.648 |
| BE1 | 0.176 | 0.204 | 0.098 | 0.724 | 0.225 | 0.226 | 0.057 | 0.712 |
| BE2 | 0.142 | 0.112 | 0.085 | 0.845 | 0.158 | 0.145 | 0.186 | 0.835 |
| BE3 | 0.140 | 0.092 | 0.137 | 0.706 | 0.098 | 0.119 | 0.097 | 0.578 |
| BE4 | 0.098 | 0.183 | 0.191 | 0.706 | 0.026 | 0.263 | 0.194 | 0.685 |
| BE5 | 0.080 | 0.083 | 0.112 | 0.821 | 0.067 | 0.093 | 0.058 | 0.716 |
| SA1 | 0.112 | 0.141 | 0.118 | 0.135 | 0.888 | 0.127 | 0.063 | 0.874 |
| SA2 | 0.176 | 0.166 | 0.177 | 0.207 | 0.743 | 0.266 | 0.075 | 0.761 |
| SA3 | 0.140 | 0.260 | 0.113 | 0.093 | 0.793 | 0.165 | 0.089 | 0.773 |
| SA4 | 0.311 | 0.150 | 0.156 | 0.126 | 0.756 | 0.236 | 0.063 | 0.791 |
| UL1 | 0.243 | 0.233 | 0.167 | 0.171 | 0.241 | 0.655 | 0.136 | 0.676 |
| UL2 | 0.209 | 0.233 | 0.169 | 0.211 | 0.276 | 0.794 | 0.097 | 0.887 |
| UL3 | 0.243 | 0.171 | 0.274 | 0.212 | 0.124 | 0.620 | 0.069 | 0.613 |
| UL4 | 0.141 | 0.109 | 0.172 | 0.204 | 0.114 | 0.725 | 0.068 | 0.646 |
| UL5 | 0.172 | 0.304 | 0.156 | 0.194 | 0.255 | 0.640 | 0.148 | 0.680 |
| BP1 | -0.041 | -0.208 | -0.081 | -0.043 | -0.113 | -0.078 | -0.856 | 0.805 |
| BP2 | -0.111 | -0.146 | -0.098 | -0.135 | -0.011 | -0.088 | -0.818 | 0.739 |
| BP3 | -0.181 | -0.108 | -0.214 | -0.092 | -0.122 | -0.167 | -0.734 | 0.680 |
| BP4 | -0.101 | -0.125 | -0.134 | -0.222 | -0.018 | -0.023 | -0.743 | 0.647 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Eigenroot Value | 12.713 | 2.596 | 2.248 | 2.114 | 1.725 | 1.498 | 1.202 | - |
| Variance Explained % | 38.525% | 7.868% | 6.812% | 6.407% | 5.227% | 4.538% | 3.644% | - |
| Cumulative Variance Explained % | 38.525% | 46.393% | 53.205% | 59.612% | 64.839% | 69.377% | 73.021% | - |
| Eigenroot Value | 3.812 | 3.784 | 3.618 | 3.557 | 3.219 | 3.165 | 2.943 | - |
| Variance Explained % | 11.552% | 11.466% | 10.963% | 10.778% | 9.754% | 9.591% | 8.917% | - |
| Cumulative Variance Explained % | 11.552% | 23.018% | 33.981% | 44.759% | 54.513% | 64.104% | 73.021% | - |
| KMO value | | | | 0.909 | | | | - |
| Barth Spherical Value | | | | 4349.764 | | | | -df |
| df | | | | 528 | | | | -p |
| p-value | | | | 0.000 | | | | - |

Note: The bolded numbers in the table indicate that the absolute value of the loading coefficient is greater than 0.5.

## 3. Correlation Analysis

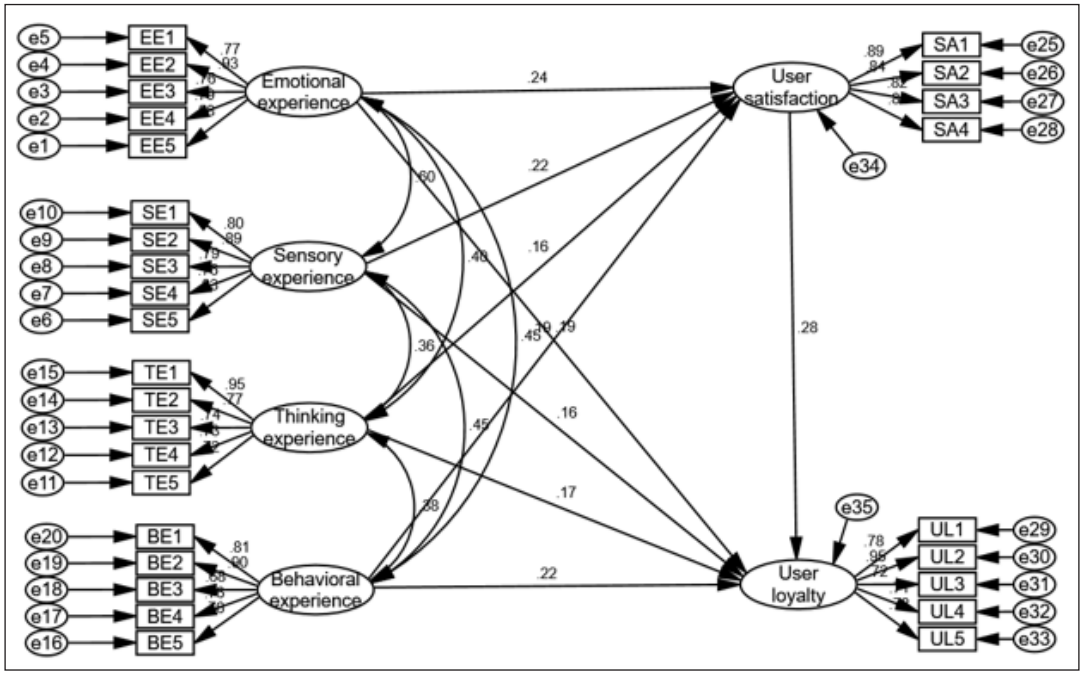
**Table 4.** Pearson Correlation

| | Emotional Experience | Perceptual Experience | Thinking Experience | Behavioral Experience | User Satisfaction | User Loyalty |
|---|---|---|---|---|---|---|
| Emotional Experience | 1 | | | | | |
| Sensory Experience | 0.578*** | 1 | | | | |
| Thinking Experience | 0.394*** | 0.335*** | 1 | | | |
| Behavioral Experience | 0.452*** | 0.418*** | 0.380*** | 1 | | |
| User Satisfaction | 0.511*** | 0.484*** | 0.381*** | 0.415*** | 1 | |
| User Loyalty | 0.599*** | 0.562*** | 0.493*** | 0.552*** | 0.588*** | 1 |

Note: *$p$<0.05, **$p$<0.01, ***$p$<0.001.

## 4. Structural Equation Model Analysis

**Fig. 2.** Structural Equation Model




## 5. Model Fit

**Table 5.** Structural Equation Model Fit Index

| Model Fit Index | Judgment Criteria | Actual Value |
|---|---|---|
| Absolute Fit Index | | |
| $\chi 2$ /df | < 3.00 | 1.478 |
| GFI | > 0.80 | 0.843 |
| AGFI | > 0.80 | 0.811 |
| RMSEA | < 0.08 | 0.051 |
| Value-Added Fitting Index | | |
| NFI | > 0.80 | 0.871 |
| IFI | > 0.80 | 0.954 |
| TLI | > 0.80 | 0.948 |
| CFI | > 0.80 | 0.954 |
| Simplicity Index | | |
| PNFI | > 0.50 | 0.776 |
| PCFI | > 0.50 | 0.850 |

## 6. Path Relationship Effect

According to the above table, the standardized coefficients of emotional experience, sensory experience, thinking experience, and behavioral experience on user satisfaction are 0.239, 0.223, 0.157, and 0.187, respectively, and their corresponding significant p-values are all less than 0.05, indicating that emotional experience, sensory experience, thinking experience, and behavioral experience all have significant positive effects on user satisfaction, so the Hypothesis H1 is verified. The standardized coefficient of user satisfaction on user loyalty is 0.28, and the corresponding p-values are less than 0.05, indicating that user satisfaction has a significant positive influence on user loyalty; therefore, Hypothesis H2 is verified. The standardized coefficients of emotional experience, sensory experience, thinking experience, and behavioral experience on user loyalty are 0.192, 0.164, 0.17, and 0.221, respectively, and their corresponding significant p-values are less than 0.05, indicating that emotional experience, sensory experience, thinking experience, and behavioral experience have significant positive effects on user loyalty, so Hypothesis H3 is verified.

**Table 6.** Path Relationship Effect

| Path | | | Estimate | β | S.E. | C.R. | P |
|---|---|---|---|---|---|---|---|
| User Satisfaction | ← | Emotional Experience | 0.267 | 0.239 | 0.101 | 2.639 | 0.008 |
| User Satisfaction | ← | Sensory Experience | 0.271 | 0.223 | 0.110 | 2.458 | 0.014 |
| User Satisfaction | ← | Thinking Experience | 0.242 | 0.157 | 0.117 | 2.069 | 0.039 |
| User Satisfaction | ← | Behavioral Experience | 0.297 | 0.187 | 0.130 | 2.277 | 0.023 |
| User Loyalty | ← | Emotional Experience | 0.147 | 0.192 | 0.059 | 2.499 | 0.012 |
| User Loyalty | ← | Sensory Experience | 0.137 | 0.164 | 0.064 | 2.145 | 0.032 |
| User Loyalty | ← | Thinking Experience | 0.179 | 0.170 | 0.068 | 2.609 | 0.009 |
| User Loyalty | ← | Behavioral Experience | 0.241 | 0.221 | 0.077 | 3.128 | 0.002 |
| User Loyalty | ← | User Satisfaction | 0.192 | 0.280 | 0.052 | 3.720 | *** |

## 7. Mediation Effect

In the mediation path "emotional experience → user satisfaction → user loyalty", the mediation effect of perceived value is 0.067, and the 95% bias-corrected confidence interval based on Bootstrap sampling test is 0.019~0.0147, which does not contain 0, indicating the existence of a mediation effect. Therefore, Hypothesis H4a was verified.

In the mediation path "sensory experience → user satisfaction → user loyalty", the mediation effect of perceived value is 0.062, and the 95% bias-corrected confidence interval based on Bootstrap sampling test is 0.015~0.133, which does not contain 0, indicating the existence of a mediation effect. Therefore, Hypothesis H4b was verified.

In the mediation path of "thinking experience → user satisfaction → user loyalty", the mediation effect of perceived value is 0.044, and the 95% bias-corrected confidence interval based on Bootstrap sampling test is 0.003~0.105, and the interval does not contain 0, which indicates the existence of a mediation effect. Therefore, Hypothesis H4c was verified.

According to the above table, in the mediation path "behavioral experience → user satisfaction

→ user loyalty", the mediation effect of perceived value is 0.052, and the 95% bias-corrected confidence interval based on Bootstrap sampling test is 0.011~0.123, which does not contain 0, indicating the existence of a mediation effect. Therefore, Hypothesis H4d is verified.

**Table 7.** Mediation Effect

| Path | Effect Value | Lower | Upper | p |
|---|---|---|---|---|
| Emotional Experience → User Satisfaction → User Loyalty | 0.067 | 0.019 | 0.147 | 0.006 |
| Sensory Experience→ User Satisfaction → User Loyalty | 0.062 | 0.015 | 0.133 | 0.011 |
| Thinking Experience→ User Satisfaction → User Loyalty | 0.044 | 0.003 | 0.105 | 0.036 |
| Behavioral Experience→ User Satisfaction → User Loyalty | 0.052 | 0.011 | 0.123 | 0.013 |

## 8. Analysis of Moderating Mediating Effects

**Table 8.** Summary Table of Regression Models

| | User Loyalty (Model 1) | | | | User Satisfaction (Model 2) | | | |
|---|---|---|---|---|---|---|---|---|
| | β | SE | t-value | p value | β | SE | t-value | p-value |
| Constant | 2.839 | 0.401 | 7.076 | 0.000*** | 3.917 | 0.532 | 7.357 | 0.000*** |
| Brand Experience | 0.455 | 0.054 | 8.404 | 0.000*** | 0.559 | 0.070 | 7.934 | 0.000*** |
| Brand Personality | 0.015 | 0.047 | 0.328 | 0.744 | 0.034 | 0.072 | 0.472 | 0.637 |
| Brand Experience * Brand Personality | 0.149 | 0.047 | 3.191 | 0.002** | 0.184 | 0.069 | 2.651 | 0.009** |
| User Satisfaction | 0.159 | 0.050 | 3.183 | 0.002** | | | | |
| Gender | 0.002 | 0.083 | 0.029 | 0.977 | 0.020 | 0.126 | 0.162 | 0.872 |
| Age | 0.119 | 0.068 | 1.751 | 0.082 | -0.033 | 0.103 | -0.319 | 0.750 |
| Academic Calendar | -0.003 | 0.103 | -0.029 | 0.977 | -0.118 | 0.156 | -0.754 | 0.452 |
| Monthly Income | -0.045 | 0.032 | -1.424 | 0.156 | -0.030 | 0.048 | -0.622 | 0.535 |
| Hours per day | -0.028 | 0.036 | -0.801 | 0.424 | -0.054 | 0.054 | -1.002 | 0.318 |
| Sample Size | 183 | | | | 183 | | | |
| $R^2$ | 0.607 | | | | 0.388 | | | |
| Adjusted $R^2$ | 0.584 | | | | 0.357 | | | |
| F-value | 29.651*** | | | | 13.809*** | | | |

Note: *$p$<0.05, **$p$<0.01, ***$p$<0.001.

According to the above table, in Model 1, gender, age, education, monthly income, and the daily length of browsing short videos are used as control variables, and the interaction term of brand experience and brand personality has a significant positive effect on user loyalty, indicating a significant moderating effect. In Model 2, there is a significant positive effect of brand experience and brand personality interaction term on user satisfaction, indicating a significant moderating effect.

**Table 9.** Results of Conditional Direct Effect

| Level | Level Value | Effect | SE | t value | p value | LLCI | ULCI |
|---|---|---|---|---|---|---|---|
| Low Level (-1SD) | -1.000 | 0.306 | 0.073 | 4.169 | 0.000 | 0.162 | 0.450 |
| Mean Value | 0.000 | 0.455 | 0.054 | 8.404 | 0.000 | 0.349 | 0.561 |
| High Level (+1SD) | 1.000 | 0.604 | 0.069 | 8.689 | 0.000 | 0.467 | 0.740 |

Note: LLCI refers to the lower limit of the estimated 95% interval, and ULCI refers to the upper limit of the estimated 95% interval.

According to the conditional direct effect table, the direct effect of brand experience Bootstrap sampling at the 95% confidence interval does not contain 0 at low, medium, and high levels of brand personality, indicating that the direct effect exists, and the direct effect of brand experience increases with the increase of the level of brand personality, thus indicating that there is a positive moderating effect between brand personality in brand experience and user loyalty. Therefore, Hypothesis H5 is verified.

**Table 10.** Results of the Conditional Indirect Effect (CIE)

| Mediating Variable | Level | Level Value | Effect | BootSE | BootLLCI | BootULCI |
|---|---|---|---|---|---|---|
| User Satisfaction | Low Level (-1SD) | -1.000 | 0.060 | 0.026 | 0.017 | 0.118 |
| | Mean Value | 0.000 | 0.089 | 0.031 | 0.032 | 0.152 |
| | High Level (+1SD) | 1.000 | 0.118 | 0.040 | 0.042 | 0.199 |

Note: BootLLCI refers to the lower limit of the 95% interval of Bootstrap sampling, and BootULCI refers to the upper limit of the 95% interval of Bootstrap sampling.

According to the conditional indirect effect table, the mediating effect of user satisfaction at low, medium and high levels of brand personality Bootstrap sampling at the 95% confidence interval does not contain 0, indicating that a mediating effect exists, and the mediating effect of user satisfaction increases with the increase of the level of brand personality, thus indicating that the mediating effect of brand personality in user satisfaction on brand experience and user loyalty exists The positive moderating effect of brand personality in user satisfaction on brand experience and user loyalty. Therefore, Hypothesis H6 is verified.

**Table 11.** Test Results

| Hypothesis | Content | Results |
|---|---|---|
| H1a | Emotional experience positively affects user satisfaction. | Support |
| H1b | Sensory experience positively affects user satisfaction. | Support |
| H1c | Thinking experience positively affects user satisfaction. | Support |
| H1d | Behavioral experience positively affects user satisfaction. | Support |
| H2 | User satisfaction positively affects user loyalty. | Support |
| H3a | Emotional experience positively affects user loyalty. | Support |
| H3b | Sensory experience positively affects user loyalty. | Support |
| H3c | Thinking experience positively affects user loyalty. | Support |
| H3d | Behavioral experience positively affects user loyalty. | Support |
| H4a | User satisfaction plays a mediating role in the relationship between emotional experience and user loyalty. | Support |
| H4b | User satisfaction plays a mediating role in the relationship between sensory experience and user loyalty. | Support |
| H4c | User satisfaction plays a mediating role in the relationship between thinking experience and user loyalty. | Support |
| H4d | User satisfaction plays a mediating role in the relationship between behavioral experience and user loyalty. | Support |
| H5 | Brand personality plays a positive moderating role in the process of brand experience's influence on user loyalty. | Support |
| H6 | Brand personality positively moderates the mediating role of user satisfaction between brand experience and user loyalty. | Support |

## V. Conclusions and Recommendations

### 1. Research Conclusions

This study explored the relationship between short video brand experience, user satisfaction, brand personality, and user loyalty, and proposed 15 hypotheses. Through empirical analysis of the research model and related hypotheses, the results verified the 15 hypotheses and obtained the following conclusion.

(a) The four dimensions of brand experience have a significant positive influence on user loyalty and user satisfaction, and user satisfaction has a significant positive influence on user loyalty. Among these, emotional experience has the greatest impact on user satisfaction, and behavioral experience has the greatest impact on user loyalty. Therefore, the simpler and easier to understand the download process and various functions of mobile short videos, the easier and better users will experience them and be more willing to continue use. At the same time, the short video should hit the main points and highlight information points to arouse emotional resonance and generate a sense of belonging.

(b) User satisfaction plays a partly mediating role in the influence of emotional experience,

sensory experience, thinking experience and behavioral experience on user loyalty. In other words, emotional experience, sensory experience, thinking experience, and behavioral experience can not only influence user loyalty alone, but also indirectly influence user loyalty through user satisfaction. Therefore, in short video product design and marketing, attention should be paid to brand experience in all aspects to ensure the quality of products and services and guarantee that core interests are satisfied.

(c) Brand personality plays a positive moderating role in the influence of all four dimensions of brand experience on user loyalty. The research results show that the label of brand personality can categorize users invisibly and bring these users together through specific channels, and these users often have similar traits that create a sense of belonging. Therefore, a unique brand personality will strengthen the influence of brand experience on user loyalty.

(d) Brand personality positively regulates the mediating role of user satisfaction between brand experience and user loyalty. The initial brand personality positioning of each short video platform is not clearly differentiated, and the social native content is relatively low, which cannot arouse curiosity. Therefore, short video platforms with clear market segmentation, prominent content themes, and distinctive brand personality are more likely to enhance satisfaction through good brand experience, which will have a great impact on user loyalty.

## 2. Marketing Proposal

### 2.1. Multi-Pronged Approach to Enhance Experience Abundance

Experience abundance is the degree of diversity of an experience. Short video companies need to understand the meaning of the four dimensions of brand experience and pay attention to the driving influence of brand experience on user loyalty. Short video platforms should actively adopt various ways to strengthen brand experience in terms of emotion, sensation, thinking, and behavior so as to delight users in terms of sensation, resonate in terms of emotion, actively interact in terms of action, and inspire exploration in terms of thinking so as to increase the connection between users and the brand from multiple dimensions of brand experience, and then make users loyal to the brand in terms of attitude and behavior.

### 2.2. Brand Personality Positioning Should Be Unique

To stand out from many competitors, a unique brand personality positioning becomes an inevitable choice for short video companies. Aiming at market segments, finding differentiated positioning, and optimizing the product experience is a way for platforms to break the game. By segmenting the market, each short video platform gives the brand a corresponding personality, so that the brand personality can be deeply rooted in the hearts of users when they use the platform and produce emotional resonance, thus increasing user loyalty.

### 2.3. Improve User Loyalty

Platforms should continuously upgrade and improve the service and experience of mobile short video, connect business partners, creators, users, and platforms, build a business magnetic field, enhance user stickiness, and improve user loyalty. This will strengthen cross-platform cooperation and build an innovative platform of “short video + media”. Strategic cooperation with other short video platforms can not only maintain the activity of the community within the platform, but also actively increase new users, increase the willingness of users to share, realize multi-platform distribution of content, and form a strong communication ecological chain. In the process of multi-platform distribution, the exposure and recognition of user “IP” is enhanced, helping content creators to obtain traffic, establish

brands, develop IPs, realize commercial cash, and obtain double-win value. It will also continue to build the model of "short video + e-commerce" based on the thinking of "Internet +". Through the brand number/merchant number, important infrastructure for merchants to grow and cash in is provided, helping them to deposit private domain traffic, and through the content creation platform, we provide one-stop, full-process quality material solutions to help advertisers better connect with platform suppliers.

### 3. Research Limitations

This paper investigates the impact of mobile short video brand experience on user loyalty, but due to personal limitations and the complexity of the research question, the following shortcomings exist in this study.

First, the random nature of the sample collection and the uncontrollable emotions of the respondents through online questionnaires may lead to a less representative research sample that is not representative of all views.

Second, although short videos have been on the Internet for many years, as a new medium of information dissemination, the academic community and its related literature are still scarce. Therefore, there is a lack of theoretical support in the specific analysis.

## References

Aaker, J. L. (1997). Dimensions of brand personality. *Journal of Marketing Research*, *34*(3), 347-356.

Alba, J. W., & Huthinson, J. W. (1987). Dimensions of consumer expertise. *Journal of Consumer Research*, *13*(4), 411-454.

Al-Awadi, A. (2002). A proposed model of consumer loyalty in the retailing sector based on Kuwaiti experience. *Total Quality Management*, *13*(7), 1035-1046.

Bian, Y., Mao, B., & Zhang, Z. (2012). Analysis on the influence mechanism of brand experience on brand loyalty. *Journal of Applied Statistics and Management*, *31*(4), 670-677.

Blackston, M. (1992). Observations: Building brand equity by managing the brand's relationships. *Journal of Advertising Research*, *40*(11), 101-105.

Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand experience: What is it? How is it measured? Does it affect loyalty. *Journal of Marketing*, *73*(3), 52-68.

Chernova, Y. (2013, October 8). *Short-video start up now this news says journalism isn't dead*. WSJ. https://www.wsj.com/articles/BL-VCDB-13424

China Internet Network Information Center (CNNIC). (2022, February). *The 49th statistical report on China's internet development.* https://www.cnnic.com.cn/IDR/ReportDownloads/202204/P020220424336135612575.pdf

Cleff, T., Lin, I. C., & Waltel, N. (2014). Can you feel it?: The effect of brand experience on brand equity. *The IUP Journal of Brand Management*, *11*(2), 7-27. https://www.econbiz.de/Record/can-you-feel-it-the-effect-of-brand-experience-on-brand-equity-cleff-thomas/10010385838

Dick, A. S., & Basu, K. (1994). Customer loyalty: Toward an integrated conceptual framework. *Journal of the Academy of Marketing Science*, *22*, 99-113.

Formell, C., Johnson, M. D., Anderson, E. W., Cha, J., & Bryant, B. E. (1996). The American customer satisfaction index: Nature, purpose, and findings. *The Journal of Marketing*, *60*(4), 7-18.

Grubb, E. L. (1997). Consumer self-concept, symbolism and market behavior: A theoretical approach. *Journal of Marketing*, *31*(4), 22-27.

Ha, H. Y., & Perks, H. (2005). Effects of consumer perceptions of brand experience on the web: Brand familiarity, satisfaction and brand trust. *Journal of Consumer Behaviour*, *4*(6), 438-452.

He, T. (2018). An empirical study on the influence of short video app brand experience on users' willingness to use. *South China University of Technology*, *6*.

Howard, J. A., & Sheth, J. N. (1969). *The theory of buyer behavior.* John Wily & Sons.

Keng, C. J., Tran, V. D., & Thi, T. M. L. (2013). Relationships among brand experience, brand personality, and customer experiential value. *Contemporary Management Research*, *9*(3), 247-262.

Kim, J. W., Lee, F., & Suh, Y. G. (2015). Satisfaction and loyalty from shopping mall experience and brand personality. *Services Marketing Quarterly*, *36*(1), 62-76. https://doi.org/10.1080/15332969.2015.976523

Kotler, P. (2003). *Marketing management* (11th ed.). Prentice Hall.

Li, Z. (2014). Influence of customer participation value co-creation on brand experience in virtual brand community. *Collected Essays on Finance and Economics*, *7*, 75-81.

Lv, L. (2016). Research on the impact of brand experience on brand loyalty. *Pioneering with Science & Technologe Monothly*, *9*(13). 10-112.

Magin, S., Algesheimer, R., Huber, F., & Herrmann, A. (2003). The impact of brand personality and customer satisfaction on customer's loyalty: Theoretical approach and findings of a causal analytical study in the sector of internet service providers. *Electronic Markets: The International Journal on Networked Business*, *13*(4), 294-308. https://www.alexandria.unisg.ch/2904/

Sumino, M., & Harada, M. (2004). Affective experience of J. League fans: The relationship between affective experience, team loyalty and intention to attend. *Managing Leisure*, *9*(4), 181-192.

Oliver, R. L. (1981). Measurement and evaluation of satisfaction processes in retail settings. *Journal of Retailing*, *57*(3), 25-48.

Oliver, R. L. (1999). Whence consumer loyalty. *Joumal of Marketing*, *63*, 33-44.

Recordtrend (2022, May 19). *2021 short video user value research report from CMS.* https://recordtrend.com/short-video/2021-short-video-user-value-research-report-from-csm/

Shank, M. D., & Lynn, L. (1994). Does personality influence brand image?. *Journal of Psychology Interdisciplinary Applied*, *128*(2). 157-164.

Tucker, A. (1964). The growing importance of linear algebra in undergraduate mathematics. *The College Mathematics*, *30*, 3-9.

Wang, X. (2011). Research on customer loyalty abroad. *China Quality*, *2*, 10-11.

Wei, S., & Wu, X. (2012). The role of trust in the influence of brand experience on brand loyalty. *Social Science Online*, *10*, 238-240.

Wen, Z., & Ye, B. (2014). Moderated mediation model test method: Competition or substitution?. *Psychological Abstract*, *46*(5), 714-726.

Xu, S. (2018). *Research on the influence of brand experience on consumer response in the context of new media.* Shanghai Jiaotong University, 11.

Xue, Y., & Dong, X. (2018). Analysis of the relationship between brand personification and consumer brand loyalty based on mediation model. *Proceedings of Business and Economic Studies*, *11*, 86-89.

Yu, Z. & Zhao, Y. (2018). Influence of interaction between enterprises and customers on brand equity in virtual brand community. *Enterprise Economy*, *37*(3), 58-65.

Zhang, E. (2016). *Research on the influence of brand personality on brand love of young consumers: Based on the mediating effect of brand experience.* Anhui University, 5.

Zhang, H. (2003). Brand experience category and its marketing enlightenment. *Journal of Business Economics*, *12*, 22-25.

Zheng, L. (2002). *An empirical study of the effect of service contact on experience value: The case of shopping centers* (Master's thesis). National Taipei University of Technology, 7.

ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.33

The Journal of Global Business and Trade

Journal of Global Business and Trade

https://www.pfw.edu/jgbt

# The Regulatory Impact on Services Trade in Korea

**Jung-Hwan Cho[a], Seung-Hwan Yoon[b]***

[a]*Department of Economics, Sunchon National University, South Korea*
[b]*Jean Monnet EU Centre of Excellence, Korea University, South Korea*

*Received 25 April 2022, Revised 2 July 2022, Accepted 3 August 2022*

**ABSTRACT**

**Purpose –** This study aims to analyze the effect of Korea's Services Trade Restrictiveness Index (STRI) and STRI Heterogeneity Index (HG) on Korea's services trade.

**Design/Methodology/Approach –** Using the Poisson Pseudo Maximum Likelihood (PPML) model, this study analyzes the impact of STRI and STRI HG provided by the OECD for 26 countries on Korea's services trade (imports). The reason for using PPML is that first, a consistent estimator can be obtained regardless of the error term's distribution. Second, if there is net-zero services trade in the data, sample selection bias can occur as the zero-trade data is excluded from the analysis when using ordinary least squares (OLS).

**Findings –** After converting the STRI and the STRI HG into a single index through principal component analysis (PCA), results show that the STRI is not statistically significant, but the STRI HG shows a statistically significant negative (-) sign in all analysis models. This means that the greater the STRI HG with Korea's trading partners, the more negative the impact on services trade, which implies that even if the level of services restrictiveness is low, services trade volume will reduce as regulatory coherence with trading partners decreases.

**Research Implications –** Whereas previous studies primarily focused on major advanced countries such as OECD nations or specific service industries, this study analyzes the impact of the services trade restrictiveness on services trade for Korea and each services sector. In addition, existing studies perform cross-sectional analyses due to data availability, whereas this study reflects changes in services restrictiveness levels over time by constructing panel data for 2014–2019.

***Keywords:*** gravity model, poisson pseudo maximum likelihood, STRI (services trade restrictiveness index), STRI heterogeneity index, trade in services

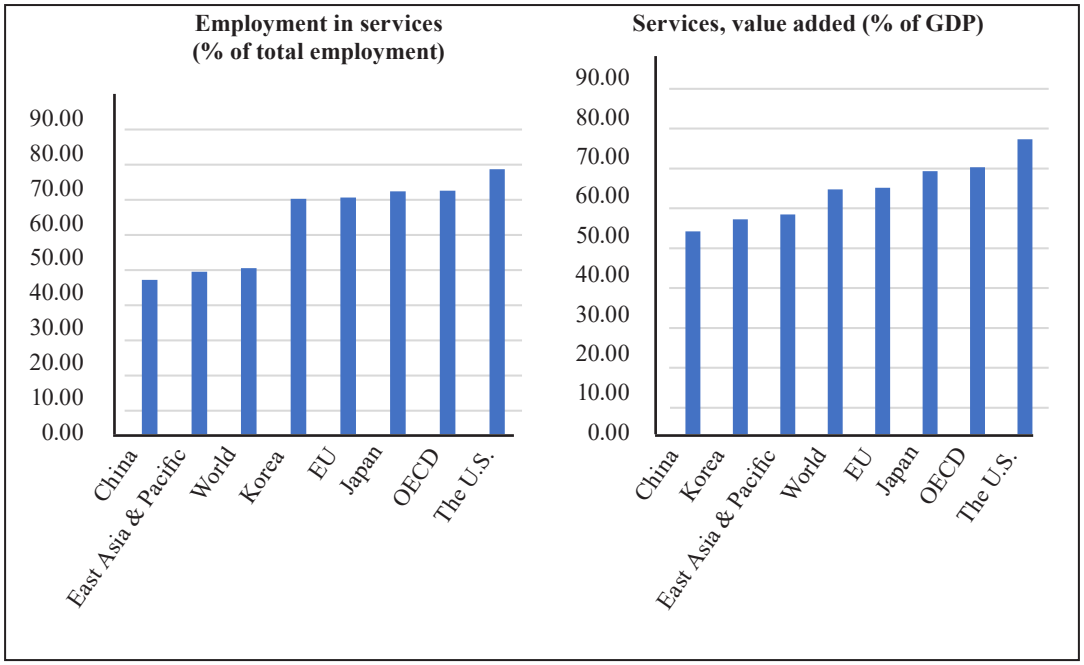
***JEL Classifications:*** F14, F15, G28, L88

* *Corresponding Author, E-mail: yoon9001@korea.ac.kr*

## I. Introduction

The global economy is being tied to services at an increasingly faster pace with a growing proportion of the services industry across the board. As illustrated in Fig. 1, services account for, on average, 70.3% (2019) and 72.7% (2019) of GDP and employment, respectively, in OECD countries as well as major trading partners including the US, China, Japan, the EU, and Korea. With the accelerating trend toward the service economy, cross-border trade in services is rapidly expanding (See Fig. 2)[1], which in turn boosts the presence of services in the global economy.

**Fig. 1.** The Share of Employment and Value added in Services




Note: Employment in services (% of total employment) as of 2019 and Services, value added (% of GDP) as of 2020.
Source: World Bank (2022b).

Gone are the days when trade was confined to physical goods. Unprecedented progress in information and communication technologies starting in the late 1980s, alongside substantial growth in foreign direct investment, led to soaring direct and indirect cross-border trade in services. This unfolding situation has naturally ignited a global interest in lessening services trade barriers. However, due to the unique features inherent in services, comprehensive datasets on the latest developments in the removal of services trade barriers and the subsequent opening of the services

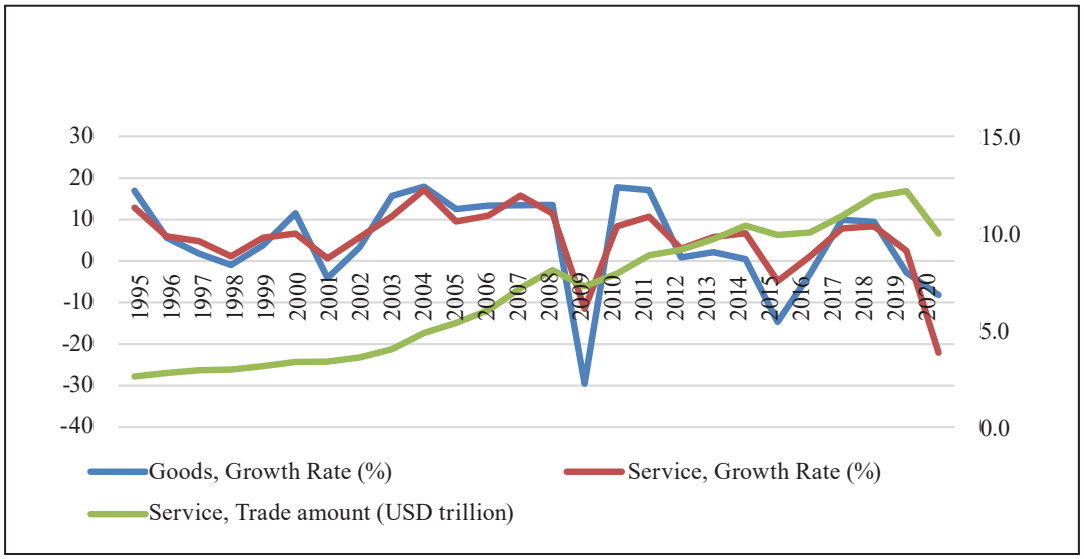
1. Trade in services, which steadily expanded since 1995, has sharply declined due to the COVID-19 pandemic. Year-over-year growth rates of trade in both goods and services have exhibited similar patterns with the exception of 2008-2009 (global financial crisis) and 2020. Since 1995, trade in services has represented 25%-32% of trade in goods.

market remain elusive.

The unique features[2] of services reflect the fact that, unlike goods whose prices are affected by tariffs, services are not dictated by prices but by the regulations that must be followed when providing them. The General Agreement on Trade in Services (GATS) of the WTO[3] currently governs cross-border trade in services. The GATS distinguishes between four modes of supplying services: cross-border trade, consumption abroad, commercial presence, and movement of natural persons.

Each country restricts trade in services through regulations tailored to their laws and systems by recording in separate columns the measures and restrictions related to market access and national treatment by mode of supply and the positive-list approach is adopted for services sectors that are not open to foreign services suppliers. Therefore, it is quite a challenging task to compare, analyze, and quantify each country's different laws and regulations.

**Fig. 2.** The Trend of Global Services Trade




Note: Trade of Goods and Services, Current US$.
Source: World Bank (2022b).

Nonetheless, growing cross-border trade in services and the increased demand for manufacturing-related services thanks to advances in global value chains (GVCs) highlight the importance of the services trade. In this context, it is imperative to build relevant databases and secure access to quantified data on services trade barriers.

In line with this new trend, international organizations' research institutes have taken a keen interest in quantifying services trade barriers. For instance, the World Bank announced

2. Services are characterized by intangibility, heterogeneity, inseparability, and perishability.
3. Most RTAs and FTAs, which increased markedly starting in the mid-1990s, borrowed the content of WTO GATS or made some modifications to GATS to reflect FTA participants' legal and economic needs.

its services trade restrictiveness index (STRI) in 2012 for 103 countries; it shows the varying degrees of discrimination in each country against overseas service providers for five services sectors (telecommunications, finance, transportation, retail, and professional services) during the period 2008–2010 based on Model 1 (cross-border supply), Model 3 (commercial presence), and Model 4 (movement of natural persons) excluding Model 2 (consumption overseas).

The OECD started its quantification of services trade barriers in June 2007 and released its STRI encompassing 40 countries (34 OECD countries and six major trading partners) and 18 services sectors in May 2014. In 2022, the OECD released an expanded STRI to cover 48 countries including 38 OECD member countries and 22 services sectors. Unlike the World Bank's STRI, the OECD's STRI represents evaluation indexes classified into five policy categories, namely restrictions on foreign entry, restrictions to movement of people, barriers to competition, regulatory transparency, and other discriminatory measures, At the time of writing, the data is available up to 2021. Additionally, while the World Bank's STRI for developing countries relies on surveys, the OECD's STRI takes into account each country's services-related laws and regulations, thus making it possible to ascertain the yearly changes in services trade restrictiveness for 2014–2021.

Going a step further, the OECD developed its STRI heterogeneity indices (HG) to assess the degree of differences in services trade restrictiveness between countries and has been providing relevant data on a total of 22 services sectors since 2014. Regulatory heterogeneity between countries is a critical area that needs thorough examination along with the degree of restrictiveness before opening the services market. This is because high levels of openness in the services market among participating countries do not necessarily facilitate trade in services when confronted with high degrees of heterogeneity. Nordås (2016) empirically confirmed the adverse effect of high levels of regulatory heterogeneity on trade in services, outweighing the positive impact of low services trade barriers.

Targeting 26 countries that engage in services trade with Korea, this study aims to analyze the impact of STRI and STRI HG provided by the OECD on Korea's services trade. In other words, this study delves into Korea's services trade restrictiveness relative to its trading partners by services sector to ascertain the effect of such restrictiveness on Korea's services trade.

Following the introduction, Chapter 2 examines the current status of Korea's services trade and reviews previous research, Chapter 3 proposes empirical analysis models and data, and Chapter 4 discusses empirical findings and their implications. Chapter 5 concludes with suggestions for future research.

## II. The Current Status of Korea's Services Trade and Literature Review

### 1. The Current Status of Korea's Services Trade

Korea's services trade balance (Appendices Table A) shows a continuous deficit over the last 20 years. The nation ran a deficit of US $850 million in 2000 and saw its deficit steadily grow until the global financial crisis (2008–2009) when the deficit shrank slightly. Since then, the nation's deficit has experienced a pattern of ups and downs. However, the COVID-19 pandemic slashed Korea's exports and imports in 2020 by 15% and 25%, respectively, decreasing the nation's services trade deficit by 45% to US $14.6 billion.

By services sector (Appendices Table E), Korea has run a continuous deficit in the balances of manufacturing services on physical inputs owned by others, travel, charges for the use of intellectual property, and other business services. In particular, travel and charges for the use of intellectual property account for 80% of this deficit. The only sector that has continuously recorded a surplus is construction services. Although the balances of TCI (telecommunications, computer, and information services), PCR (Personal, cultural,

and recreational services), and financial services register surpluses, the figures are relatively modest.[4]

Korea's trade balance of services by country (Appendices Table B) registered noticeable deficits in its trade with the US, the EU, and Japan while recording surpluses with China, the Middle East, and Central and South America. According to a more detailed trade balance of services by country and sector (Appendices Table C) based on the last five years, the nation's balance of manufacturing services on physical inputs owned by others has recorded a huge deficit with China (US $5.4 billion in 2020), exceeding the total deficit (US $5.3 billion in 2020). On the other hand, the nation runs surpluses, though insignificant, with the US, the EU, Japan, and the Middle East. Meanwhile, Korea's travel services, based on the average of the last five years, registered a handsome deficit of around US $12.6 billion with all of its trading partners except China. In 2020, there was a significant drop in the nation's deficit compared to 2016–2019 due to the coronavirus pandemic. Nonetheless, the nation's travel services' deficit was the second largest in its services sectors, recording the highest deficit with the US and the EU, followed by Southeast Asia and Japan. In terms of the balance in charges for the use of intellectual property, Korea runs recurring deficits with the US, the EU, and Japan but registers surpluses in its trade with China, Southeast Asia, the Middle East, and Central and South America. The nation's huge deficit with the US and the EU warrants special attention. Regarding other business services, Korea experienced a deficit with all of its trading partners with larger deficits with the US and the EU than the other countries.

The above data testifies to Korea's weaker competitiveness in terms of services. The nation particularly lags far behind other countries in charges for the use of intellectual property and other business services, which in turn urges the Korean government to formulate policies aimed at boosting the nation's competitive edge in patents and business services that can be utilized as intermediate inputs for cutting-edge and manufacturing industries. For the balance of manufacturing services on physical inputs owned by others—the manufacturing processing, assembly, packaging, labeling, and related services required to manufacture products—Korea runs an enormous deficit with China, more than the nation's total services trade deficit, which is primarily attributable to Korea's overall trade structure. Without any drastic shift in the nation's trading pattern with China, Korea is unlikely to leave the red in the near future. Likewise, the nation has suffered a chronic deficit in its tourism balance, running sizable deficits with the US, the EU, Southeast Asia, and Japan while registering a surplus with China. For a successful turnaround in the tourism sector, the nation must actively pursue strategies to attract foreign tourists and promote related investments.

## 2. Literature Review

The effect of services trade restrictions on actual trade performance has been under-analyzed. This is because not only did related data become available as recently as 2010 but also a wide array of country-specific restrictions on services along with different laws and regulations defy any attempt to employ one-size-fits-all analytical tools.

However, with trade in services expanding and the increasing demand for databases that effectively navigate different laws and systems (viewed as trade barriers) and facilitate comparative analysis, international organizations such as the World Bank and the OECD have started compiling related data and constructing databases to create indexes for comparative analysis.

4. Official name of services trade is used from the following source, "Extended Balance of Payments Services classification (EBOPS 2010) (OECD, 2022c)", https://www.oecd.org/sdd/its/EBOPS-2010.pdf, which matches the current Korea's services classification.

In 2012, the World Bank announced its STRI (World Bank, 2022a), which encompassed 103 countries and five services sectors (telecommunications, finance, transportation, retail, and professional services and key modes of delivery). Taking advantage of this newly released index, Borchert et al. (2014) analyzed the effect of services trade policies on foreign direct investment while Kox & Nordas (2007) analyzed the impact of domestic restrictions on trade in business services and financial services. Marel & Shepherd (2013) and La et al. (2018) estimated the effect that STRI has on services trade depending on the services mode of supply.

The OECD has announced its annual STRI since 2014 (OECD, 2022a). As of April 2022, the OECD STRI is available for 48 countries (38 OECD member countries and 10 major trading partners) and 22 services sectors. Nordås & Rouzet (2015) and Kim & Sung (2015) utilized the OECD STRI to demonstrate that the higher the level of services trade restrictiveness, the lower the trade flow between countries. Walsh (2006) and Fontagne & Mitaritonna (2013) used the same index to analyze its effect on selected services trade. Kox & Lejour (2006) and Schwellnus (2007) employed the OECD's Product Market Regulation Indicators to analyze the impact of domestic regulations and regulatory heterogeneity between countries on trade in services.

In addition to its STRI, the OECD developed STRI HG to assess the varying degrees of each country's services trade restrictiveness; the relevant data is available for 2014–2020. Nordås (2016) used this index to confirm that different degrees of services trade restrictiveness between two countries can exert an adverse effect on their trade in services. These analytical findings suggest that apparent differences in restrictiveness between countries could dampen their trade in services even though the services markets of participating countries are wide open, which prioritizes mutual cooperation toward relaxed restrictions.

Several studies analyzed the effect of regional integration on services trade. Regional trade agreement (RTA) and free trade agreement (FTA) in particular came into existence since the 2000s, and most of these agreements include the trade in services agreement. Services trade costs are generally higher than trade costs involving goods. Miroudot et al. (2013) verified that executing trade in services agreements between trading parties lowers trade costs. Furthermore, Guillin (2013) and Shingal (2010) presented their research findings that RTA has a positive effect on services trade. Francois & Hoekman (2010) also analyzed the impact of RTA on services and put forth their intriguing research results that the sectors of business services and ICT services within the EU can witness trade diversion. In addition, Fink (2009) revealed the significant effect of RTA on trade in services within the EU with the exception of certain services such as travel and transportation.

This study distinguishes itself from others as follows. First, unlike other research works that primarily targeted major advanced countries including OECD countries (Nordas & Rouzet, 2015; Nordas, 2016; Nordas & Rouzet, 2017) or specific services sectors (Nam et al, 2012), this study focused on Korea and analyzed the effect of varying degrees of the nation's services restrictiveness on its services trade by sector. Another difference is that whereas other existing studies performed cross-sectional analyses due to data availability (Hoekman & Shepherd, 2015; Kim & Sung, 2015; Marel & Shepherd, 2013; Nordas & Rouzet, 2017), this study constructed panel data covering 2014–2019 and incorporated changes in the levels of services trade restrictiveness over time. Consequently, we believe that this study could deliver significant implications for Korea's services trade policies.

## III. Methodology and Data

### 1. Model Specification

This study aims to estimate the effect of Korea's STRI and STRI HG on the nation's

services imports, referring to the literature review.[5] That is, this study analyzes the extent to which services exports from Korea's trading partners to Korea are affected by Korea's services trade restrictiveness. For empirical analysis, the modified gravity model is illustrated in the following formula (1).

$$lnTR_{ikt} = \beta_0 + \beta_1 lnGDP_{kt} + \beta_2 lnPGDP_{kt} + \beta_3 GDPR_{kt} + \beta_4 STRI_{kt} + \beta_5 HETERO_{kt} + \varepsilon_{ikt} \quad (1)$$

In the above formula, the subscript *i* represents 26 countries that exported services to Korea during the analysis period while *k* refers to Korea and *t* denotes the years of the analysis period (2014–2019). Therefore, the export amount of countries that exported services to Korea during the analysis period is a dependent variable. Independent variables are those that affect the services exports of Korea's 26 trading partners: GDP that represents the size of the Korean economy, GDP per capita (PGDP) that reflects the nation's income level, and the nation's economic growth rate (GDPR). *ln* means natural logarithm and $\varepsilon_{ikt}$ is a stochastic error term by country and year. In summary, the modified gravity model regards the value of services exports from 26 countries to Korea as a dependent variable while considering those variables that affect Korea's services imports as independent variables because services exports from 26 countries correspond to import amounts by services sector from Korea's perspective. As aforementioned, the objective of this study is to estimate the extent to which services exports of Korea's trading partners are affected by Korea's services trade restrictiveness. In this sense, we have incorporated into the model those key variables that reflect Korea's STRI and HETERO (degree of heterogeneity in services trade restrictiveness between Korea and its trading countries).

Based on our prediction that Korea's expanding economy will increase services exports among Korea's trading partners, we expect the estimated coefficient $\beta_1$ to have a positive value. However, an increase in Korea's GDP per capita may have conflicting effects on services exports for the nation's trading partners. When Korea's higher income leads to an increasing demand for foreign services, $\beta_2$ will likely have a positive value. However, in the case where a higher income exerts a stronger effect of substituting services imports, $\beta_2$ may have a negative value. Given that Korea's rapid economic growth will boost services imports, we expected $\beta_3$ to have a positive value.

In line with existing studies' research findings, we expect that Korea's higher services trade restrictiveness will negatively impact services exports from Korea's trading partners to Korea, resulting in a decrease in services imports and a negative value for $\beta_4$ Similarly, the higher degree of heterogeneity in services trade restrictiveness between Korea and its trading partners will adversely affect the nation's services imports, potentially making the value of $\beta_5$ negative.

5. Most previous studies employed the gravity model when estimating the effect of services trade restrictiveness on trade in services. However, this study did not use the gravity model due to data limitations. Despite the gravity model's ability to consider the trade costs (such as the distance, common language, contiguity, the similarity of systems, etc.) it was judged that the gravity model's efficiency would be compromised because most countries covered in this study do not share these datasets with Korea.
6. The 22 services sectors subject to the OECD STRI are: Logistics cargo-handling, Logistics storage and warehouse, Logistics freight forwarding, Logistics customs brokerage, Accounting, Architecture, Engineering, Legal, Motion pictures, Broadcasting, Sound recording, Telecom, Air transport, Maritime transport, Road freight transport, Rail freight transport, Courier, Distribution, Commercial banking, Insurance, Computers, and Construction.

**Table 1.** Services Trade Classification of OECD and UN

| No | OECD (STRI) | UN (EBOPS 2002) | Note |
|---|---|---|---|
| 1 | Accounting | 276 | Broader scope than STRI |
| 2 | Architecture | 280 | Broader scope than STRI |
| 3 | Engineering | 280 | Broader scope than STRI |
| 4 | Legal | 275 | - |
| 5 | Motion pictures | 288 | Broader scope than STRI |
| 6 | Broadcasting | 288 | Broader scope than STRI |
| 7 | Sound recording | 288 | Broader scope than STRI |
| 8 | Telecom | 247 | - |
| 9 | Air transport | 210 | - |
| 10 | Maritime transport | 206 | Different from Nordås and Rouzet (2015) |
| 11 | Courier | 246 | - |
| 12 | Commercial banking | 260 | Broader scope than STRI |
| 13 | Insurance | 253 | Broader scope than STRI |
| 14 | Computer | 262 | Broader scope than STRI |
| 15 | Construction | 249 | - |

Note: Road freight transport, rail freight transport, and distribution are excluded.

**Table 2.** Summary statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Trade services ($ millions USD) | 3,006 | 44 | 112 | 0 | 964 |
| GDP ($ billions USD) | 3,006 | 1,580 | 101 | 1,470 | 1,720 |
| Per capita GDP ($USD) | 3,006 | 30,738 | 1,796 | 28,732 | 33,423 |
| GDP growth rate (%) | 3,006 | 2.93 | 0.26 | 2.24 | 3.20 |
| Maritime transport | 3,006 | 0.10 | 0.12 | 0.00 | 0.30 |
| Air transport | 3,006 | 0.16 | 0.18 | 0.00 | 0.49 |
| Courier | 3,006 | 0.13 | 0.12 | 0.02 | 0.39 |
| Telecoms | 3,006 | 0.11 | 0.11 | 0.00 | 0.34 |
| Construction | 3,006 | 0.05 | 0.05 | 0.00 | 0.17 |
| Insurance | 3,006 | 0.03 | 0.03 | 0.00 | 0.11 |
| Commercial banking | 3,006 | 0.06 | 0.06 | 0.00 | 0.20 |
| Computer | 3,006 | 0.04 | 0.04 | 0.00 | 0.13 |
| Legal | 3,006 | 0.16 | 0.18 | 0.00 | 0.49 |
| Accounting | 3,006 | 0.33 | 0.35 | 0.04 | 1.00 |
| Architecture | 3,006 | 0.07 | 0.07 | 0.00 | 0.21 |
| Engineering | 3,006 | 0.05 | 0.06 | 0.00 | 0.16 |
| Motion pictures | 3,006 | 0.05 | 0.05 | 0.01 | 0.16 |
| Broadcasting | 3,006 | 0.12 | 0.15 | 0.01 | 0.36 |
| Sound recording | 3,006 | 0.04 | 0.04 | 0.01 | 0.13 |

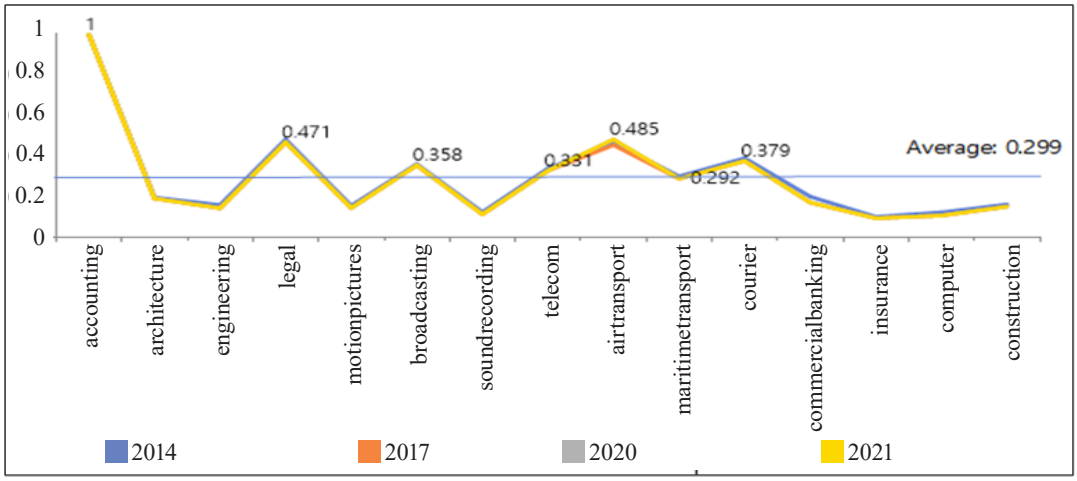
## 2. Data Sources and Description

Ascertaining the impact of Korea's STRI and STRI HG on the nation's services imports entails an index that measures the degree of restrictiveness by services sector. This study employs the OECD STRI, which is believed to faithfully represent services restrictiveness. Since 2014, the OECD has been releasing its STRI, which measures the level of restrictiveness across 22 services sectors.[6]

For the data on services imports into Korea, this study utilizes the UN's services trade data. Referring to the classification of Nordås & Rouzet (2015) and combining the OECD STRI with the UN's Extended Balance of Payments Services Classification (EBOPS) 2002 (UN, 2022a), a total of 15 service sectors were selected as shown in Table 1.

The data available for this study covers 26 countries[7] that have exported services to Korea in 2004–2019, which means that the analysis uses unbalanced panel data. Data sources are as follows. The annual services exports from 26 countries to Korea were extracted from the UN trade statistics (UN, 2022b). The restrictiveness index by services sector—a variable of interest for this study—has been extracted from the OECD STRI. Other control variables such as GDP, GDP per capita, and Korea's economic growth rate have been derived from the World Development Indicators (World Bank, 2022b). Table 2 details the summary statistics used for the analysis.

**Fig. 3.** STRI for Korea in 2014-2021

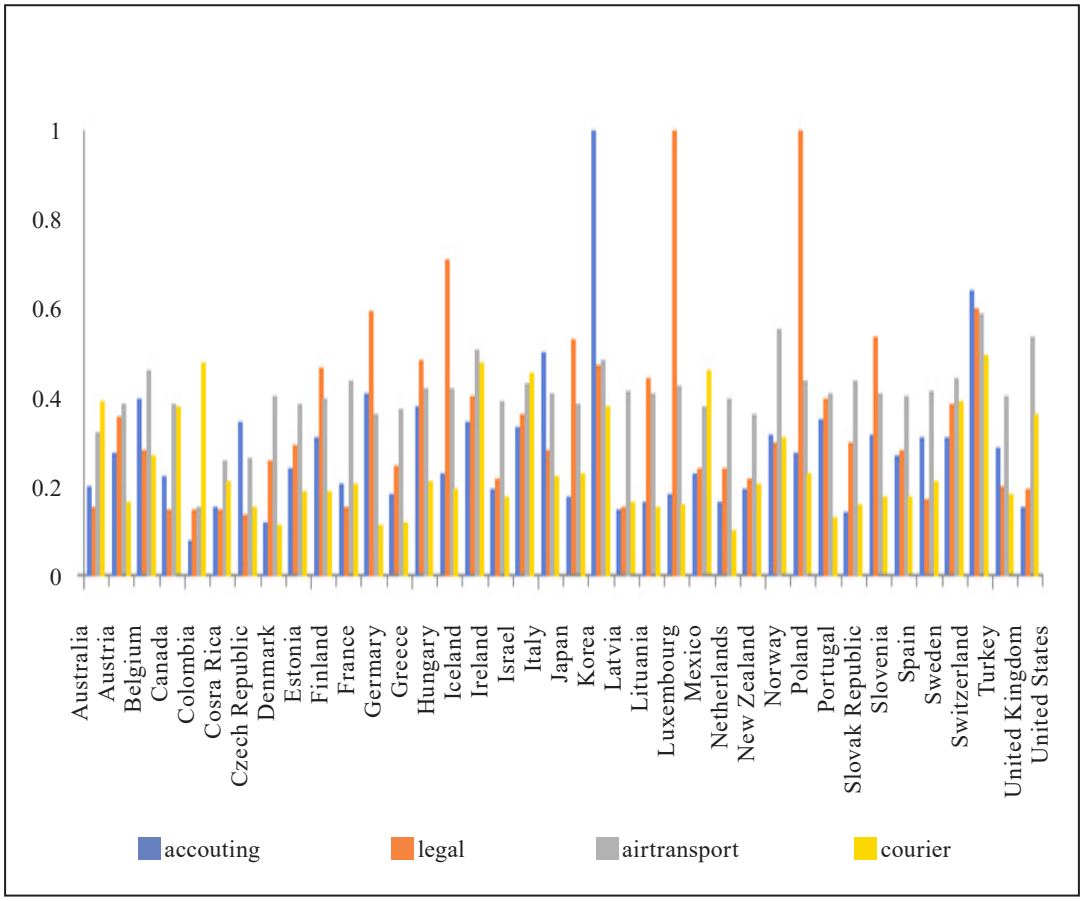



Source: Authors' calculation based on OECD STRI index (OECD, 2022a).

When compared with the nation's trading partners, Korea's trade restrictiveness in accounting is much higher while other sectors of legal, air transport, and courier, to a greater or lesser extent, show similar degrees.[8]

7. Refer to Appendices Table D for the list of 26 countries.
8. Note that small differences in the degree of services trade restrictiveness between Korea and other trading partners do not mean that the degree of regulatory heterogeneity is not high.

**Fig. 4.** Comparison of STRI between Countries




Source: Authors' calculation based on OECD STRI index (OECD, 2022a).

Table 3 summarizes regulatory differences[9] between Korea and other countries. In terms of accounting, Korea shows high degrees of regulatory heterogeneity with Eastern European countries such as Czech Republic, Latvia, and Slovak Republic. For legal services, high degrees of regulatory heterogeneity are shown with the UK, France, Poland, and Latvia. The sectors of air transport and courier have lower degrees of regulatory heterogeneity than accounting and legal services.

9. STRI HG falls between 0 and 1 with 0 being the lowest and 1 being the highest. To be exact, almost identical services trade restrictiveness between trading partners is assigned 0 whereas absolutely disparate restrictiveness is assigned 1. Calculating the average of all restrictions yields STRI HG. Refer to the OECD STRI Heterogeneity Indices (OECD, 2022b) for more information.

**Table 3.** Heterogeneity of STRI between Korea and other countries

| Country | Accounting | Air transport | Courier | Legal |
|---|---|---|---|---|
| Australia | 0.7315 | 0.3736 | 0.2627 | 0.4781 |
| Austria | 0.7215 | 0.2261 | 0.2353 | 0.3822 |
| Belgium | 0.6205 | 0.2395 | 0.3178 | 0.4358 |
| Canada | 0.7991 | 0.2593 | 0.2910 | 0.4986 |
| Czech Republic | 0.8320 | 0.1837 | 0.1764 | 0.4344 |
| Denmark | 0.7043 | 0.2141 | 0.2371 | 0.3653 |
| Estonia | 0.6901 | 0.2241 | 0.1983 | 0.2005 |
| Finland | 0.7483 | 0.2074 | 0.2555 | 0.4596 |
| France | 0.6567 | 0.2188 | 0.1822 | 0.5183 |
| Germany | 0.7531 | 0.2549 | 0.2543 | 0.4355 |
| Greece | 0.6314 | 0.2543 | 0.2821 | 0.2440 |
| Hungary | 0.7162 | 0.2677 | 0.2619 | 0.4069 |
| Iceland | 0.6085 | 0.2755 | 0.4097 | 0.4759 |
| Ireland | 0.7687 | 0.2230 | 0.1802 | 0.4654 |
| Italy | 0.4876 | 0.2348 | 0.2343 | 0.3537 |
| Latvia | 0.8080 | 0.2339 | 0.2017 | 0.5007 |
| Lithuania | 0.7888 | 0.2222 | 0.1961 | 0.1993 |
| Luxembourg | 0.7517 | 0.2257 | 0.2447 | 0.5119 |
| Netherlands | 0.7902 | 0.2259 | 0.2284 | 0.4706 |
| New Zealand | 0.7608 | 0.3160 | 0.2164 | 0.4358 |
| Poland | 0.7126 | 0.2631 | 0.2553 | 0.5119 |
| Slovak Republic | 0.8002 | 0.2152 | 0.2382 | 0.4088 |
| Slovenia | 0.6178 | 0.2299 | 0.1987 | 0.2427 |
| Sweden | 0.6988 | 0.1700 | 0.2835 | 0.4149 |
| Turkey | 0.3811 | 0.2186 | 0.2671 | 0.3632 |
| United Kingdom | 0.7014 | 0.2681 | 0.2693 | 0.5359 |

## IV. Estimation Results

This study estimated the effect of STRI and STRI HG on Korea's services imports and laid out its analytical results as Table 4. For the analysis, we targeted all of the nation's services imports and converted the STRI and the STRI HG of each services sector into a single index through principal component analysis (PCA).[10] PCA produced common factors that can represent the STRI and the STRI HG across 15 services sectors. Based on these factors, we estimated the effect of the two indexes on Korea's total services imports.

**Table 4.** Benchmark Results

| Variables | (1) POLS | (2) FE | (3) RE | (4) PPML |
|---|---|---|---|---|
| lnGDP | 130.731*** | 13.307 | 14.944 | 8.771*** |
| | (25.718) | (16.446) | (16.328) | (1.693) |
| lnPGDP | -142.340*** | -16.258 | -17.975 | -9.550*** |
| | (27.870) | (17.684) | (17.564) | (1.833) |
| GDPR | 2.244*** | 0.298 | 0.315 | 0.152*** |
| | (0.325) | (0.206) | (0.205) | (0.022) |
| STRI | 0.000 | -0.000 | -0.000 | 0.000 |
| | (0.055) | (0.031) | (0.031) | (0.004) |
| HETERO | -0.168*** | -0.415*** | -0.395*** | -0.011*** |
| | (0.056) | (0.114) | (0.110) | (0.003) |
| Constant | -2,192.585*** | -191.789 | -220.071 | -145.410*** |
| | (435.317) | (279.848) | (277.753) | (28.680) |
| Observations | 3,006 | 3,006 | 3,006 | 3,006 |
| $R^2$ | 0.019 | 0.009 | 0.009 | 0.019 |
| No. of Country | 21 | 21 | 21 | 21 |

Notes: 1. Standard errors are in parentheses.
2. ***, ** and * indicate statistical significance at 1, 5, and 10 percent levels, respectively.

10. PCA is the method of extracting common factors of components from highly correlated variables based on their greater-than-one eigenvalues or their power to explain all factors effectively. Through PCA, we converted the STRI and the STRI HG across 15 services sectors into a single index. In the case of STRI, only one component has an eigenvalue greater than one, accounting for 91% of total variance, while four components in STRI HR have eigenvalues greater than one, capturing 83% of the total variance (Appendices Fig. A). However, with one of the four components in STRI HR taking up the lion's share (48%) of the total variance, we decided to use this component only for the sake of interpretation. We named these two components that represent STRI and STRI HR "STRI" and "HETERO," respectively.

The above table outlines the results estimated through four different models—pooled OLS, fixed effects, random effects, and Poisson Pseudo Maximum Likelihood (PPML)—for Equation (1) in the analytical model. We intend to elaborate on the analytical results using PPML-derived estimates. The rationale is that multiple zero observations of services trade prevent pooled OLS estimation from controlling for selection bias and heteroskedasticity bias, thus providing room for biases to occur in estimation (Helpman et al., 2008). In this case, as demonstrated by Silva and Tenreyro (2006), PPML can yield efficient estimators (Nordås & Rouzet, 2017).

GDP is shown to have a positive value in all four models. However, only in the pooled OLS and PPML estimates is its value statistically significant at the 1% level, indicating that Korea's expanding economy leads to an increase in the nation's services imports. In contrast, all four models produced a negative value for the nation's GDP per capita. Again, its value is only statistically significant at the 1% level in the pooled OLS and PPML estimates. As previously mentioned, this implies that Korea's increasing income exerts a greater effect on substituting services imports rather than further stimulating services imports. Like GDP, the Korea's economic growth rate has been estimated to have a positive value that is statistically significant at the 1% level, confirming that the growing economy boosts services imports.

With regard to the variables of interest, this study employed PPML to estimate the effect of Korea's STRI and STRI HG (HETERO) on the nation's services imports. According to the estimation results, the STRI variable was found to have no statistical significance, whereas STRI HG (HETERO) was estimated to have a negative value that is statistically significant at the 1% level. These findings suggest that it is not Korea's level of trade restrictiveness itself but the degree of its regulatory heterogeneity or regulatory coherence relative to other trading partners that directly affect the nation's services imports.

Appendices Table F shows the effect of STRI and STRI HG (HETERO) across services sectors on Korea's services trade (imports). Since STRI lacks statistical significance (even at the level of individual sectors), its impact on services trade cannot be determined. By contrast, STRI HG (HETERO) is of statistical significance across almost all services sectors, which confirms the findings in Table 4; the degree of Korea's regulatory coherence relative to other trading partners has a more significant effect on the nation's services trade than the level of trade restrictiveness itself.

When examining each services sector, transportation services (maritime and air transport and courier) and construction services (construction, architecture, and engineering) show statistically significant negative values, which means that high degrees of regulatory heterogeneity in these sectors discourage Korea's trading partners from exporting services to Korea. Therefore, any effort to reconcile different levels of restrictiveness could help exporting countries reduce the costs incurred by trade restrictions.

Korea's STRIs in air transport and courier are relatively high. However, given that its STRI HGs (HETEROs) are similar to those of other countries, it is important to emphasize the critical role of regulatory coherence in services trade.

Meanwhile, other business services (legal, insurance, and accounting services), personal, cultural, and recreational services (motion pictures, broadcasting, and sound recording), and telecom services reveal statistically significant positive values, which conflicts with this study's hypothesis and prediction. Further investigations are necessary to ascertain whether the contrasting results reflect the high proportion of these services used as intermediate inputs in manufacturing despite Korea's low competitiveness in business services. Likewise, for personal, cultural, and recreational services (motion pictures, broadcasting, and sound recording) and telecom services, more rigorous analyses are needed to determine whether the opposite results are attributable to the difference[11] between the industry classification utilized in this study and the Korean services industry classification.

In summary, this study's analytical findings are as follows. First, when considering the nation's

entire services trade, the degree of regulatory heterogeneity—rather than STRI itself—plays an integral role in the services trade between Korea and its trading partners. Second, even at the level of individual sectors, the level of regulatory heterogeneity—taking precedence over the level of restrictiveness—exerts a significant effect but with varying degree depending on the characteristics of each services sector. Consequently, policy considerations should be directed to enhancing regulatory coherence with other trading partners across all services sectors.

## V. Conclusions

This study utilized the modified gravity model to examine the effect of STRI and STRI HG on Korea's services trade (imports) with its 26 trading partners.

First, we converted STRIs and STRI HGs into a single index through PCA (principal component analysis); STRIs were analyzed to be statistically insignificant while STRI HGs showed statistically significant negative values in all analytical models. This indicates that the higher degree of Korea's regulatory heterogeneity with its trading partners, the more likely its services trade will be negatively affected. That is, despite the low level of services restrictiveness, less regulatory coherence with trading partners may shrink the services trade volume.

This study's analytical findings imply that how the authorities set and pursue policy directions dictates the validity of their policies. Korea can enhance its nation's services competitiveness through further market openings that will intensify competition and motivate domestic services sectors to become more competitive. However, the government should also be prepared to seamlessly cope with sectors that drop out of the race. Specifically, the nation needs to welcome competition in services sectors (construction, TCI; telecommunications, computer, and information services, PCR; personal, cultural, and recreational services, and financial services) that are competitive and record trade surpluses. Meanwhile, effective policies should be formulated to support the sectors (travel, charges for the use of intellectual property, and other business services) that continue to register deficits. In particular, travel and charges for the use of intellectual property services that account for about 80% of Korea's services trade deficit urgently need policy support to increase their competitive edge. For example, the only viable solution to improving the trade balance in travel services is to encourage foreigners to visit Korea since it is difficult—if not impossible—to discourage Koreans from traveling abroad. This is the most opportune time for the government to take full advantage of Korea's heightened cultural status and come up with measures to improve its travel services balance.

From the perspective of increasing trade in services, policymakers are advised to devise and implement policies that raise the nation's regulatory coherence with its trading partners. For instance, through FTA negotiations on the services market opening, the nation could improve its regulatory coherence to facilitate its services trade with other trading partners.

This study has certain limitations; we were unable to analyze Korea's services exports due to limited datasets. While the data on the services exports of 26 countries to Korea is available, the data on their services imports from Korea is currently unavailable because no databases are in place given the insignificant services exports from Korea to these countries. Constructing relevant databases will facilitate further studies that explore the impact of trading partners' STRI and STRI HG on Korea's services exports. Accumulating data over the next five to ten years will enable in-depth research on the relationship between services trade restrictiveness and actual trade performance that will present far more meaningful and significant analytical results, which is left for future studies.

11. The OECD STRI classifies services into 22 categories. This study narrowed the categories down to 15 based on the UN standard industry classification and data availability; however, Korea provides data for 12 services categories.

## References


Bank of Korea. (2022, January 4). *Economic statistic system*. http://ecos.bok.or.kr/

Borchert, I., Gootiiz, B., & Mattoo, A. (2014). Policy barriers to international trade in services: Evidence from a new database. *The World Bank Economic Review*, *28*(1). 162-188. https://doi.org/10.1093/wber/lht017

Fink, C. (2009). *Has the EU single market program led to deeper integration of EU services market?* (GEM Working Paper). Group d'Economie Mondiale, Sciences Po. https://ecipe.org/wp-content/uploads/2014/12/Fink_Has_the_EUs_Single_Market_Program_Led_to_Integration.pdf

Fontagne, L., & Mitaritonna, C. (2013). Assessing barriers to trade in the distribution and telecom sectors in emerging countries. *World Trade Review*, *12*(1), 57-78. https://doi.org/10.1017/S1474745612000456

Francois, J., & Hoekman, B. (2010). Services trade and policy. *Journal of Economic Literature*, *48*(3), 642-692. https://www.jstor.org/stable/20778764

Guillin, A. (2013). Assessment of tariff equivalents for services considering the zero flows. *World Trade Revi*ew, *12*(3), 549-575. https://doi.org/10.1017/S1474745612000559

Helpman, E., Melitz, M., & Rubinstein, Y. (2008). Estimating trade flows: Trading partners and trading volumes. *Quarterly Journal of Economics*, *123*(2), 441-487. https://doi.org/10.1162/qjec.2008.123.2.441

Hoekman, B., & Shepherd, B. (2015). Services productivity, Trade policy and manufacturing exports. *The World Economy*, 499-516. https://doi.org/10.1111/twec.12333

Kim, J. D., & Sung, H. K. (2015). *The difference in the level of services liberalization and its impact on services trade* (Policy Analysis 15-06). KIEP (Korea Institute for International Economic Policy). https://www.kiep.go.kr/gallery.es?mid=a20303000000&bid=0001&list_no=2098&act=view

Kox, H., & Lejour, A. (2006). The effect of the services directive on Intra-EU trade and FDI. *Revue Economique*, *57*(4), 747-769. https://www.jstor.org/stable/25483792

Kox, H., & Nordas, H. (2007). *Services trade and domestic regulation* (OECD Trade Policy Papers No. 49). OECD. http://dx.doi.org/10.1787/154365452587

La, M. R., Cheong, J. W., Shin, M. G., Shin, M. L., & Kim, J. G. (2018). *An analysis of service trade regulations in ASEAN and its implications* (Policy Analysis 18-23). KIEP (Korea Institute for International Economic Policy). https://www.kiep.go.kr/gallery.es?mid=a20303000000&bid=0001&list_no=2318&act=view

Marel, E., & Shepherd, B. (2013). Services trade, regulation and regional integration: Evidence from sectoral data. *The World Economy*, 1393-1405. https://doi.org/10.1111/twec.12083

Miroudot, S., Sauvage, J., & Shepherd, B. (2013). Measuring the cost of international trade in services. *World Trade Review*. *12*(4), 719-735. https://doi.org/10.1017/S1474745613000049

Nam, S. Y., Ko, H. J., Kim, S. W., & Park, S. J. (2012). *An analysis of the OECD telecommunications service STRI (Service Trade Restrictiveness Index) and its implications for trade and investment liberalization* (Policy Analysis 12-18). KISDI (Korea Information Society Development Institute). https://www.kisdi.re.kr/report/view.do?key=m2101113024153&arrMasterId=3934560&masterId=3934560&artId=531574

Nordås, H., & Rouzet, D. (2015). *The impact of services trade restrictiveness on rrade flows: First estimates* (OECD Trade Policy Papers No. 178). OECD. https://www.oecd-ilibrary.org/docserver/5js6ds9b6kjb-en.pdf?expires=1657357708&id=id&accname=guest&checksum=2CA66FEE117A545F5FBB2AB778F1FA1F

Nordås, H., & Rouzet, D. (2017). The impact of services trade restrictiveness on trade flows. *The World Economy*, *40*(6), 1155-1183. http://dx.doi.org/10.1111/twec.12424

Nordås, H. (2016). *Services trade restrictiveness index (STRI): The trade effect of regulatory differences* (OECD Trade Policy Papers No. 189). OECD. http://dx.doi.org/10.1787/5jlz9z022plp-en

OECD. (2022a, January 3). *OECD services trade restrictiveness index.* https://stats.oecd.org/Index.aspx?DataSetCode=STRI

OECD. (2022b, January 3). *OECD STRI heterogeneity indices*. https://stats.oecd.org/Index.aspx?DataSetCode=STRI

OECD. (2022c, January 4). *Extended balance of payments services classification* (EBOPS 2010). https://www.oecd.org/sdd/its/EBOPS-2010.pdf

Schwellnus, C. (2007). *The effect of domestic regulation on services trade revisited* (CEPII Working Paper No. 2007-08). CEPII. http://cepii.fr/PDF_PUB/wp/2007/wp2007-08.pdf

Shingal, A. (2010, September 9-11). *How much do agreements matter for services trade?.* Paper presented at the ETSG conference 2010. Lausanne, Switzerland. http://www.etsg.org/ETSG2010/papers/Shingal.pdf

Silva, S., & Tenreyro, S. (2006). The log of gravity. *The Review of Economics and Statistics*, *88*(4), 641-658. https://doi.org/10.1162/rest.88.4.641

United Nations. (2022a, January 4). *Extended balance of payments services classification* (EBOPS 2002). https://unstats.un.org/unsd/classifications/Econ/Download/In%20Text/ebops2002_eng.pdf

United Nations. (2022b, January 4). *UN comtrade database*. https://comtrade.un.org/data/

Walsh, K. (2006). *Trade in services: Does gravity hold? A gravity model approach to estimating barriers to services trade* (IIIS Discussion Paper Series No. 183). http://dx.doi.org/10.2139/ssrn.945335

World Bank. (2022a, January 4). *Services trade restrictions database*. https://www.worldbank.org/en/research/brief/services-trade-restrictions-database

World Bank. (2022b, January 4). *World development indicators*. https://databank.worldbank.org/source/world-development-indicators

# Appendices

**Table A.** Trade Balance of Services

(Unit: USD Million)

| Year | Balance | Export | Import |
|---|---|---|---|
| 2000 | -845.7 | 32,556.4 | 33,402.1 |
| 2001 | -2,266.3 | 30,776.6 | 33,042.9 |
| 2002 | -5,826.3 | 31,023.1 | 36,849.4 |
| 2003 | -4,845.1 | 35,760.5 | 40,605.6 |
| 2004 | -5,050.4 | 45,284.6 | 50,335.0 |
| 2005 | -8,984.2 | 50,537.7 | 59,521.9 |
| 2006 | -13,040.2 | 57,012.0 | 70,052.2 |
| 2007 | -13,039.5 | 71,413.0 | 84,452.5 |
| 2008 | -6,310.7 | 91,045.4 | 97,356.1 |
| 2009 | -9,337.7 | 72,541.3 | 81,879.0 |
| 2010 | -13,972.8 | 82,948.7 | 96,921.5 |
| 2011 | -12,056.5 | 90,559.7 | 102,616.2 |
| 2012 | -5,057.5 | 103,134.3 | 108,191.8 |
| 2013 | -6,328.8 | 103,324.2 | 109,653.0 |
| 2014 | -3,290.1 | 111,902.3 | 115,192.4 |
| 2015 | -14,625.8 | 97,498.6 | 112,124.4 |
| 2016 | -17,338.4 | 94,809.1 | 112,147.5 |
| 2017 | -36,734.1 | 89,701.3 | 126,435.4 |
| 2018 | -29,369.4 | 103,677.5 | 133,046.9 |
| 2019 | -26,845.3 | 103,838.9 | 130,684.2 |
| 2020 | -14,670.1 | 89,595.7 | 104,265.8 |

Source: Bank of Korea (2022).

**Table B.** Trade Balance of Services by Country

(Unit: USD Million)

| Year | Total | The U.S. | China | Japan | EU | SE Asia | Mid-East | CS | Other |
|---|---|---|---|---|---|---|---|---|---|
| 2000 | -845.7 | -1,840.4 | -673.6 | 1,965.0 | -1,129.5 | 727.0 | -16.3 | 171.0 | -48.9 |
| 2001 | -2,266.3 | -1,913.8 | -601.8 | 2,055.9 | -2,394.3 | 242.1 | 311.8 | 159.7 | -125.9 |
| 2002 | -5,826.3 | -2,782.6 | -406.2 | 280.6 | -3,456.1 | -726.3 | 750.4 | 195.3 | 318.6 |
| 2003 | -4,845.1 | -2,720.0 | 491.7 | 7.4 | -3,502.8 | -519.2 | 892.1 | 269.5 | 236.2 |
| 2004 | -5,050.4 | -2,513.5 | 529.0 | -65.3 | -4,044.2 | 467.6 | 1,036.2 | 477.4 | -937.6 |
| 2005 | -8,984.2 | -3,303.4 | -732.6 | -973.9 | -5,445.3 | -78.5 | 2,173.7 | 575.8 | -1,200.0 |
| 2006 | -13,040.2 | -7,306.9 | -1,103.1 | -1,980.9 | -5,015.7 | -165.8 | 2,563.2 | 868.6 | -899.6 |
| 2007 | -13,039.5 | -7,462.4 | -261.2 | -3,477.5 | -7,717.2 | -392.6 | 4,293.2 | 1,280.6 | 697.6 |
| 2008 | -6,310.7 | -8,783.0 | 1,629.8 | -454.4 | -9,539.9 | 856.2 | 5,459.4 | 2,940.0 | 1,581.2 |
| 2009 | -9,337.7 | -8,856.3 | -1,131.2 | 428.3 | -9,405.8 | 604.7 | 8,612.1 | 914.2 | -503.7 |
| 2010 | -13,972.8 | -12,625.6 | 315.5 | 631.2 | -10,145.3 | -424.6 | 6,048.8 | 1,651.6 | 575.6 |
| 2011 | -12,056.5 | -11,748.5 | -1,419.6 | 2,518.6 | -9,201.5 | -51.3 | 4,429.8 | 2,686.8 | 729.2 |
| 2012 | -5,057.5 | -12,491.3 | 859.6 | 3,939.0 | -9,462.2 | 496.9 | 7,983.8 | 2,591.1 | 1,025.6 |
| 2013 | -6,328.8 | -11,021.4 | 5,292.3 | 52.3 | -9,865.2 | 1,092.1 | 4,216.5 | 2,483.7 | 1,420.9 |
| 2014 | -3,290.1 | -10,906.3 | 7,949.7 | 1,263.4 | -9,886.2 | 1,505.2 | 4,735.9 | 2,040.6 | 7.6 |
| 2015 | -14,625.8 | -14,022.0 | 5,709.4 | -1,042.8 | -9,270.9 | 959.0 | 2,907.9 | 1,233.2 | -1,099.6 |
| 2016 | -17,338.4 | -13,977.5 | 5,111.8 | -1,386.5 | -9,762.0 | -335.0 | 3,142.2 | 922.7 | -1,054.1 |
| 2017 | -36,734.1 | -16,338.2 | -916.9 | -3,801.3 | -12,594.2 | -2,762.8 | 1,801.0 | 590.2 | -2,711.9 |
| 2018 | -29,369.4 | -14,317.2 | 2,219.1 | -3,026.4 | -13,576.8 | -111.2 | 1,077.4 | 633.1 | -2,267.4 |
| 2019 | -26,845.3 | -13,337.6 | 3,211.3 | -834.2 | -12,928.0 | -612.5 | -203.2 | 413.7 | -2,554.8 |
| 2020 | -14,670.1 | -8,328.5 | 733.3 | 333.6 | -6,653.9 | 1,722.1 | 765.4 | 611.6 | -3,853.7 |

Note: CS denotes Central-South America and SE Asia is Southeast Asia.
Source: Bank of Korea (2022).

**Table C.** Trade Balance of Services by Country and by Sector

(Unit: USD Million)

| | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 |
|---|---|---|---|---|---|---|---|---|---|
| Year | Total | The U.S. | China | Japan | EU | SE Asia | Mid-East | CS | Other |
| 2016 | -5,761.9 | 268.3 | -5,653.8 | 366.3 | 79.3 | -723.7 | 3.5 | -46.5 | -55.3 |
| 2017 | -6,955.0 | 217.8 | -6,401.5 | 372.4 | 73.0 | -1,160.6 | 4.1 | -27.4 | -32.8 |
| 2018 | -7,324.8 | 183.0 | -7,060.1 | 498.3 | 112.5 | -1,032.6 | 13.4 | -33.7 | -5.6 |
| 2019 | -7,611.2 | 61.7 | -6,721.1 | 366.0 | 156.5 | -1,368.3 | 9.5 | -44.5 | -71.0 |
| 2020 | -5,259.4 | 107.6 | -5,368.8 | 352.9 | 111.8 | -389.0 | 6.9 | -46.3 | -34.5 |
| | S4 | S4 | S4 | S4 | S4 | S4 | S4 | S4 | S4 |
| 2016 | -10,357.4 | -5,671.7 | 7,613.1 | -2,175.6 | -4,050.5 | -3,549.3 | -14.2 | -134.2 | -2,375.0 |
| 2017 | -18,323.7 | -5,504.8 | 3,429.9 | -3,458.4 | -5,687.2 | -4,319.1 | -2.5 | -107.1 | -2,674.5 |
| 2018 | -16,565.7 | -5,276.5 | 5,483.7 | -3,738.9 | -5,771.1 | -4,205.8 | 10.2 | -121.0 | -2,946.3 |
| 2019 | -11,872.0 | -4,419.7 | 6,462.2 | -1,844.9 | -7,020.3 | -2,517.1 | 54.5 | -106.8 | -2,479.9 |
| 2020 | -5,815.8 | -1,706.4 | 1,704.6 | 494.5 | -2,839.7 | -1,195.4 | -32.0 | -45.9 | -2,195.5 |
| | S7 | S7 | S7 | S7 | S7 | S7 | S7 | S7 | S7 |
| 2016 | -2,493.4 | -4,794.8 | 1,760.4 | -475.8 | -1,458.9 | 2,018.1 | 35.0 | 92.0 | 330.6 |
| 2017 | -2,414.8 | -4,639.8 | 1,899.0 | -596.3 | -1,903.8 | 2,431.8 | 22.4 | 58.7 | 313.2 |
| 2018 | -2,063.2 | -4,789.9 | 2,515.9 | -713.0 | -2,284.2 | 2,688.8 | 25.0 | 76.6 | 417.6 |
| 2019 | -2,157.4 | -3,845.3 | 1,603.8 | -847.0 | -2,353.9 | 2,430.4 | 30.6 | 371.1 | 452.9 |
| 2020 | -2,993.2 | -3,895.9 | 1,753.5 | -395.4 | -656.8 | 1,949.3 | -8.2 | 287.0 | -2,026.7 |
| | S9 | S9 | S9 | S9 | S9 | S9 | S9 | S9 | S9 |
| 2016 | -7,721.2 | -1,897.1 | -1,072.1 | 406.8 | -3,161.3 | -555.3 | -5.2 | -180.2 | -1,256.8 |
| 2017 | -12,213.5 | -4,239.5 | -1,204.0 | -233.8 | -3,495.6 | -700.3 | -363.8 | -211.1 | -1,765.4 |
| 2018 | -12,214.5 | -3,865.0 | -992.7 | -9.2 | -3,696.6 | -889.8 | -840.9 | -229.2 | -1,691.1 |
| 2019 | -12,390.8 | -3,780.9 | -662.8 | 392.4 | -3,236.5 | -2,037.9 | -881.9 | -237.1 | -1,946.1 |
| 2020 | -9,744.0 | -1,898.8 | -1,494.7 | -124.3 | -2,385.1 | -697.2 | -547.7 | -214.8 | -2,381.4 |

Note: S1 denotes Manufacturing services on physical inputs owned by others, S4 is Travel, S7 is Charges for the use of intellectual property, and S9 is Other business services

Source: Bank of Korea (2022).

**Table D.** List of Reporter Country

| No. | Country | No. | Country |
|---|---|---|---|
| 1 | Australia | 14 | Ireland |
| 2 | Austria | 15 | Italy |
| 3 | Belgium | 16 | Latvia |
| 4 | Canada | 17 | Lithuania |
| 5 | Czech Rep. | 18 | Luxembourg |
| 6 | Denmark | 19 | Netherlands |
| 7 | Estonia | 20 | New Zealand |
| 8 | Finland | 21 | Poland |
| 9 | France | 22 | Slovakia |
| 10 | Germany | 23 | Slovenia |
| 11 | Greece | 24 | Sweden |
| 12 | Hungary | 25 | Turkey |
| 13 | Iceland | 26 | United Kingdom |

**Table E.** Sectoral Trade Balance of Services

| Year | Total | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2000 | -845.7 | 878.4 | 2,299.6 | -297.6 | 745.8 | -77.8 | 85.0 | -65.4 | -2,598.8 | 78.8 | -2,234.2 | -22.3 | 362.8 |
| 2001 | -2,266.3 | 306.4 | 1,735.0 | -1,235.5 | 964.1 | -313.8 | 117.0 | -146.0 | -2,194.7 | 5.8 | -2,023.0 | 19.8 | 498.6 |
| 2002 | -5,826.3 | 267.0 | 1,474.8 | -4,532.6 | 1,752.7 | -533.7 | 223.0 | -68.0 | -2,246.3 | 18.2 | -2,812.8 | 42.4 | 589.0 |
| 2003 | -4,845.1 | 339.7 | 3,070.5 | -4,748.1 | 1,644.8 | -356.3 | 208.7 | -97.8 | -2,321.0 | 10.7 | -3,304.8 | -42.2 | 750.7 |
| 2004 | -5,050.4 | -296.0 | 4,482.6 | -6,285.0 | 2,169.4 | -322.5 | 358.8 | -124.7 | -2,681.3 | 14.5 | -3,137.1 | -51.8 | 822.7 |
| 2005 | -8,984.2 | -586.7 | 3,172.5 | -9,608.2 | 3,828.2 | -564.0 | 537.7 | -115.2 | -2,684.4 | -17.1 | -3,596.9 | -35.7 | 685.6 |
| 2006 | -13,040.2 | -1,363.5 | 2,152.3 | -13,092.1 | 5,695.0 | -580.3 | 680.4 | -517.7 | -2,661.5 | 63.9 | -3,943.2 | -154.4 | 680.9 |
| 2007 | -13,039.5 | -2,069.6 | 3,975.5 | -15,854.3 | 7,869.4 | -585.4 | 699.7 | -374.7 | -3,507.6 | 47.6 | -3,624.5 | -227.1 | 611.5 |
| 2008 | -6,310.7 | -3,139.8 | 7,508.3 | -9,321.3 | 11,078.6 | -277.4 | 411.3 | -439.5 | -3,389.1 | 3.5 | -8,842.8 | -172.7 | 270.2 |
| 2009 | -9,337.7 | -4,463.0 | 4,815.6 | -5,261.6 | 11,746.8 | -394.7 | -866.0 | -444.1 | -4,100.2 | -3.7 | -10,694.6 | -91.2 | 419.0 |
| 2010 | -13,972.8 | -4,743.1 | 8,656.7 | -8,502.9 | 9,675.2 | -367.4 | -267.6 | -410.6 | -5,994.5 | -27.7 | -11,811.2 | -244.0 | 64.3 |
| 2011 | -12,056.5 | -7,249.6 | 6,331.6 | -7,558.1 | 11,683.7 | -167.8 | -230.2 | -216.0 | -3,016.0 | 202.3 | -11,806.8 | -87.6 | 58.0 |
| 2012 | -5,057.5 | -6,652.6 | 10,131.4 | -7,372.0 | 16,345.4 | -304.4 | -436.4 | 1.4 | -4,713.7 | 168.2 | -12,412.4 | -95.0 | 282.6 |
| 2013 | -6,328.8 | -5,707.9 | 7,340.6 | -7,255.2 | 15,522.5 | -274.6 | -755.2 | 325.3 | -5,481.5 | -17.3 | -10,072.2 | -83.8 | 130.5 |
| 2014 | -3,290.1 | -5,644.0 | 6,193.9 | -5,732.2 | 15,287.9 | 60.0 | -333.7 | 967.1 | -5,004.4 | -58.1 | -9,144.8 | 16.4 | 101.8 |
| 2015 | -14,625.8 | -6,095.5 | 4,650.9 | -10,471.5 | 9,643.4 | -97.0 | -76.6 | 702.5 | -3,502.4 | -31.3 | -9,288.3 | 223.6 | -283.6 |
| 2016 | -17,338.4 | -5,761.9 | -1,328.5 | -10,357.4 | 9,556.5 | -283.3 | 61.5 | 990.5 | -2,493.4 | 0.9 | -7,721.2 | 468.3 | -470.4 |
| 2017 | -36,734.1 | -6,955.0 | -5,418.4 | -18,323.7 | 7,877.9 | -106.0 | 296.4 | 1,125.6 | -2,414.8 | -99.0 | -12,213.5 | 197.6 | -701.2 |
| 2018 | -29,369.4 | -7,324.8 | -2,507.8 | -16,565.7 | 9,718.8 | 106.9 | 816.6 | 1,556.9 | -2,063.2 | -322.7 | -12,214.5 | 227.3 | -797.2 |
| 2019 | -26,845.3 | -7,611.2 | -1,734.3 | -11,872.0 | 6,775.8 | -255.9 | 920.7 | 2,461.3 | -2,157.4 | -347.5 | -12,390.8 | 271.0 | -905.0 |
| 2020 | -14,670.1 | -5,259.4 | 1,096.8 | -5,815.8 | 5,857.2 | -243.8 | 1,684.0 | 2,041.7 | -2,993.2 | -890.4 | -9,744.0 | 182.7 | -585.9 |

Notes: S1 ~ S12 each denotes Manufacturing services on physical inputs owned by others(S1), Transport(S2), Travel(S3), Construction(S4), Insurance and pension services(S5), Financial services(S6), Telecommunications, computer, and information services(S7), Charges for the use of intellectual property(S8), Maintenance and repair services(S9), Other business services(S10), Personal, cultural, and recreational services(S11), and Government goods and services(S12).

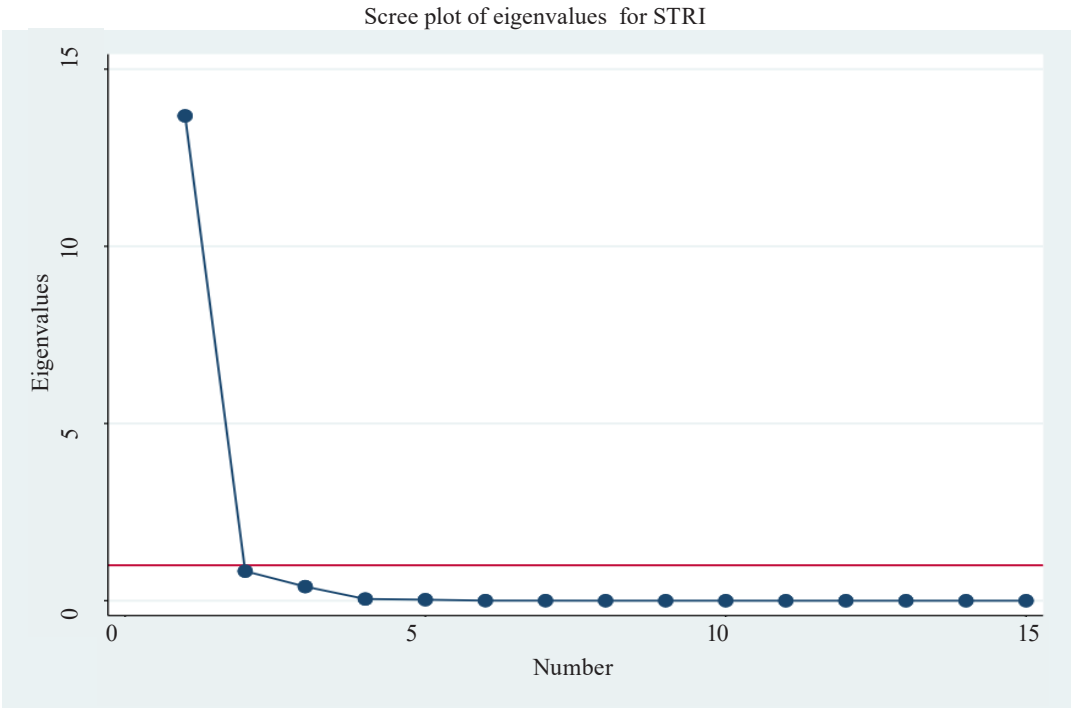
Source: Bank of Korea (2022).

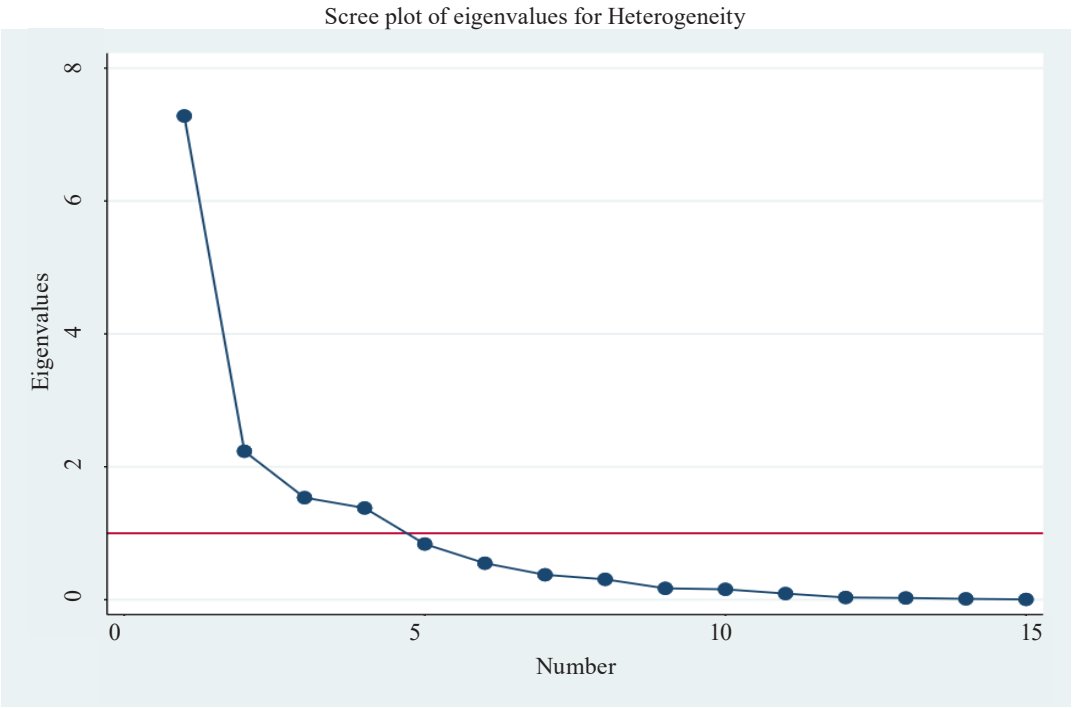
**Table F.** The STRI and Heterogeneity by services sectors: PPML estimation[3)]

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lnGDP | 1.497 | 6.206 | 12.221*** | 8.005* | 1.368 | 4.809 | 11.706*** | 6.976 | 7.879* | 11.706*** | 10.648** | 10.749** | -0.370 | 5.700 | -0.594 |
| | (3.966) | (5.011) | (4.003) | (4.533) | (3.258) | (3.718) | (3.577) | (5.765) | (4.370) | (4.352) | (5.248) | (5.335) | (5.427) | (6.985) | (5.796) |
| lnPGDP | -1.698 | -6.322 | -13.562*** | -8.535* | -2.252 | -5.423 | -12.495*** | -7.527 | -8.387* | -12.581*** | -11.128** | -11.222** | 0.894 | -5.908 | 1.002 |
| | (4.305) | (5.431) | (4.365) | (4.943) | (3.537) | (4.046) | (3.885) | (6.232) | (4.743) | (4.659) | (5.622) | (5.710) | (5.958) | (7.631) | (6.349) |
| GDPR | 0.061 | 0.143** | 0.198*** | 0.305*** | 0.040 | 0.095* | 0.124** | 0.070 | 0.110** | 0.095** | 0.040 | 0.035 | -0.002 | 0.025 | -0.032 |
| | (0.064) | (0.067) | (0.050) | (0.062) | (0.045) | (0.053) | (0.050) | (0.069) | (0.046) | (0.040) | (0.057) | (0.057) | (0.060) | (0.073) | (0.072) |
| STRI | 0.000 | 0.000 | -0.000 | -0.000 | -0.006 | 0.001 | -0.001 | -0.001 | 0.000 | 0.000 | -0.001 | -0.000 | -0.001 | -0.000 | -0.006 |
| | (0.076) | (0.056) | (0.080) | (0.089) | (0.149) | (0.246) | (0.126) | (0.290) | (0.049) | (0.025) | (0.145) | (0.195) | (0.194) | (0.078) | (0.288) |
| HETERO | -1.52*** | -1.068*** | -1.376*** | 1.679*** | -0.553*** | 0.371** | 0.161 | 0.082 | 0.389** | 0.240*** | -0.510*** | -0.364*** | 1.941*** | 0.970*** | 1.428*** |
| | (0.161) | (0.237) | (0.415) | (0.324) | (0.130) | (0.149) | (0.174) | (0.143) | (0.155) | (0.087) | (0.072) | (0.040) | (0.153) | (0.264) | (0.195) |
| Constant | -21.361 | -106.453 | -200.720*** | -135.529* | -12.437 | -76.694 | -197.319*** | -115.658 | -132.479* | -196.672*** | -181.281** | -183.199** | 3.286 | -96.855 | 8.724 |
| | (67.120) | (84.794) | (67.545) | (76.459) | (55.140) | (62.756) | (60.465) | (97.729) | (73.882) | (74.226) | (89.462) | (91.020) | (91.026) | (117.589) | (97.388) |
| Obs. | 366 | 378 | 174 | 360 | 330 | 378 | 324 | 402 | 270 | 288 | 294 | 294 | 192 | 192 | 192 |
| $R^2$ | 0.188 | 0.048 | 0.128 | 0.130 | 0.114 | 0.035 | 0.036 | 0.004 | 0.030 | 0.048 | 0.130 | 0.110 | 0.308 | 0.056 | 0.183 |

Notes: 1. Standard errors are in parentheses.
2. ***, ** and * indicate statistical significance at 1, 5, and 10 percent levels, respectively.
3. (1) maritime transport (2) air transport (3) courier (4) telecom (5) construction (6) insurance (7) commercial banking (8) computer (9) legal (10) accounting (11) architecture (12) engineering (13) motion pictures (14) broadcasting (15) sound recording.

**Fig. A.** Scree Plot of Eigenvalues



ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.57

The Journal of Global Business and Trade

**Journal of Global Business and Trade**

https://www.pfw.edu/jgbt

# Millennials' Avoidance of International Assignments in the Middle East: A Case in the EPC Industry*

**Chi-Poong Kim[a]**, Joo-Young Hong[b], Hyun-Taek Koh[c]**

[a]*School of Industrial Management, Korea University of Technology and Education, South Korea*
[b]*College of Business Administration, Seoul National University, Seoul, South Korea*
[c]*Graduate School of Business Administration, Sungkyunkwan University, Seoul, South Korea*

*Received 28 May 2022, Revised 2 July 2022, Accepted 6 August 2022*

**ABSTRACT**

**Purpose –** Working in the Middle East used to be a "must-have" experience in the Engineering, Procurement and Construction (EPC) industry. However, these days, millennials are not willing to accept such assignments. By adopting expectancy theory, this study explores the antecedents causing their reluctance.

**Design/Methodology/Approach –** We adopt consensual qualitative research method with 21 in-depth interviews of expatriates with working experience in the Middle East from three EPC companies in South Korea. In particular, our study covers expatriates working in Qatar, Morocco, Algeria, Oman, Iraq, and Kuwait, which are rarely studied in the existing literature.

**Findings –** We find that millennial expatriates are sensitive to harsh working environments that lead to limitations in their personal lives. Our study also shows that millennials perceive the reward as too low, especially when compared to expatriates in other countries or those at headquarters. Furthermore, they think working in the Middle East is not helpful to their future career.

**Research Implications –** South Korean EPC companies should identify the characteristics of these millennials and make adjustments to current HR practices, such as pay raises and career support. Allowances for long-term employees in remote parts of the Middle East should also be increased. It is necessary to give extra points to promotion for those who have worked in secluded areas.

***Keywords:*** EPC industry, expectancy theory, international assignments, middle east, millennial generation
***JEL Classifications:*** F23, L20, M10

** This paper was supported by Education and Research Promotion Program of KOREATECH in 2022.*

*** First Author & Corresponding Author, E-mail: cpkim1@koreatech.ac.kr*

## I. Introduction

Engineering, procurement, and construction (EPC) companies build complex industrial facilities, such as buildings, bridges, harbors, subways, roads, factories, industrial plants, processing plants, and large infrastructure (Masi et al., 2013). In the EPC industry, each project has unique complexities in terms of design, manufacturing, and technological requirements, and has constraints according to the country and client. Due to such uniqueness and complexity, a skilled and experienced person should be in charge of meeting the requirements of a large project successfully (Cagno & Micheli, 2011).

Experiences in foreign countries often provide individuals with unique learning experiences which cannot be acquired in the home country (Roth, 1995). A global assignment is a powerful way to grow global managers (Dragoni et al., 2014). Expatriates can acquire a global mindset and management skills by being acquainted with business practices, culture, and widespread norms of foreign countries (Stahl et al., 2009; Nielsen, 2010). Prospective global managers are required to develop capabilities to understand the business environment from a global perspective, and to work effectively with diverse people with different cultural backgrounds (Adler & Bartholomew, 1992).

For this reason, international mobility has been regarded as an essential experience for EPC companies in South Korea, since most revenue comes from overseas projects, especially in the Middle East. However, EPC companies in South Korea are recently grappling with a grave new issue; millennial, those born between 1982 and 2004 (Howe & Strauss, 2000), reluctance toward working in Middle Eastern countries. Baby Boomers in South Korea born between 1955 and 1963 endured absolute poverty as children, and suffered from the IMF financial crisis while leading South Korea's economic growth. They take for granted holiday work and overtime work, which is why they consider work to be more important than their personal life (Chung et al., 2010). This could cause the failure of projects and degradation of project quality, which could eventually lead to a lack of skilled-expatriates, even causing the bankruptcy of EPC companies.

Despite the seriousness of millennial avoidance of overseas work, surprisingly, there are limited studies manifesting the underlying mechanism of such reluctance. While these millennials are also becoming a major generation to serve in missions abroad in the EPC industry, there is lack of research on how their characteristics relate to accepting assignments abroad.

To fill the gap between the importance of the topic for EPC companies and the lack of research in the literature, the purpose of this study is to better understand the antecedents of millennial unwillingness to accept working in Middle East countries. Therefore, the following research questions are suggested.

**Research Question 1:** Why are millennials in the EPC industry reluctant to work in the Middle East?

**Research Question 2:** How do millennial characteristics impact their choice of serving on international assignments?

Our study contributes to the understanding of the millennial generation, the Middle East, and the EPC industry literatures in several ways. First, although there have been numerous studies on general willingness to relocate (Stoermer et al., 2017), little is known about why millennials are reluctant to work in hostile environments. Our study adopts expectancy theory to show that millennials perceive the reward as too low, especially when compared to expatriates in other countries, or those at headquarters by drawing on expectancy theory (Vroom, 1964). They also think working in the Middle East is not helpful to their future career any more. In doing so, we extend the expatriate literature by identifying antecedents of millennial attitude on relocation willingness when assignments are jeopardized.

Second, existing studies of millennials in the workplace have mainly focused on the

characteristics of millennials, which are different from previous generations (Rosa & Hastings, 2018). This study extends the literature on millennials' characteristics by exploring factors influencing avoidance of international assignments in the context of the Middle East and the EPC industry. A major challenge for millennials in working in the Middle East is that they have nothing special to enjoy in the Middle East. Our study identifies the harsh working environment as one of the main antecedents of millennials' unwillingness to accept working in the Middle East countries, which leads to limitations in their personal life.

Third, except for the UAE, most Middle Eastern countries are widely known as violent, terrorist, and male-dominated societies (Harrison & Michailova, 2012). Though some studies on expatriates have been conducted in a limited number of countries, including Saudi Arabia (Bozionelos, 2009) or the UAE (Harrison & Michailova, 2012), little is known about the region as a whole. This study covered a wide array of countries in the Middle East, not only including Saudi Arabia and the UAE, countries that are studied frequently but also other countries like Qatar, Morocco, Algeria, Oman, Iraq, and Kuwait that are rarely in the spotlight.

Lastly, this study was conducted on the EPC industry, which has unique characteristics compared to other industries. The major distinction between EPC and manufacturing is that the EPC industry is based on discontinuous projects. This means projects begin only when clients such as national/international oil companies order them. On the other hand, the manufacturing industry involves continuous value chain (Segerstedt & Olofsson, 2010), wherein business activities are self-initiated without client requests. Complex EPC projects are exposed to uncertainty and high risk, and the problems of imperfect information (Lau & Rowlinson, 2011). Hence, the experience of skilled workers is critical as EPCs perform different projects in different regions each time. Therefore, the success of an EPC project depends greatly on the capability of a PM, the project manager that leads the entire project, and KPs, key persons who are experts in charge of managing each function, including engineering, procurement, and construction, under a PM's directions.

This study is structured as follows. We review the literature to identify the theoretical background and build insights on why millennials started to avoid serving missions abroad. Then, we outline our methodology, discuss our findings, and suggest implications.

## II. Literature Review

### 1. Expectancy Theory

Expectancy theory is "a process theory of motivation, according to which motivation is a function of individuals' perceptions of their environment and the expectations they form based on these perceptions" (Fudge & Schlacter, 1999, 296). It assumes that perception of an individual's output determines the level of motivation. An individual consciously chooses certain types of behavior based on individual perceptions, attitudes, and beliefs because they are eager to pursue pleasure and avoid pain (Vroom, 1964). Expectancy theory explains how and why the process of selecting a particular action from among the various acts given by a reasonable individual is carried out. There are three key components that consist of expectancy theory: effort-performance expectancy, performance-outcome expectancy (instrumentality), and valence.

Among these three factors, in this study, performance-outcome expectancy, individuals' expectations that the outcomes he or she will receive are closely related to their level of performance, is a key notion in explaining millennial unwillingness to accept a global assignment. The relationship between individual performance and reward should be relevant. When a millennial expatriate perceives that they will receive benefits including a pay increase, incentives, promotion, allowances, taxation, and career development are valued, they will be

more motivated to accept a global assignment. Performance-outcome expectancy for hard work in Middle Eastern countries is determined by the millennials' recognition of rewards given when deciding to work abroad (Dickmann & Watson, 2017; Fudge & Schlacter, 1999; Konopaske & Werner, 2005).

In the literature on expatriates in a hostile environment, Konopaske and Werner (2005) investigated how various expatriate benefits explain managerial willingness to accept short-term and long-term international mobility. Recently, Dickmann and Watson (2017) suggested antecedents of expatriate acceptance of international assignments in hostile contexts by integrating individual, organizational, and location-specific factors. Such international assignment experience in MNEs can lead to promotions (Ng et al., 2005) and the opportunity for promotion to top management positions (Magnusson & Boggs, 2006).

In addition, when an individual feels his or her expectations have not been met, they may experience relative deprivation: an emotional state of feeling discriminated against by others (Crosby, 1976). It may stem from comparing to others based on certain criteria held by individuals (Ellemer & Bos, 1998). That is, negative feelings arise when individuals do not receive the compensation or treatment they have expected to receive (Olson et al., 1995). As a result, relative deprivation negatively impacts compensation satisfaction (Sweeney et al., 1990), organizational commitment (Feldman & Turnley, 2004), mental/physical health (Buunk & Jansen, 1992), and productive behavior (Toh & Denisi, 2003).

Negative feelings lead to a sense of inequity, which are central. They think they deserve to be treated better since they are dispatched to a relatively hostile and dangerous environment, compared to other expatriates or staff in the HQ. The reason why they feel the organization's support is insufficient in terms of allowances and compensation is that they are comparing themselves with others in different situations for not only the absolute amount that they are provided with but also the relative efforts that they put in. In other words, perception of relative imparity is more important than the absolute value of rewards when it comes to working in a hostile environment.

For example, the fact that a family allowance, risk allowance, on-site allowance, and salary raise are also given to expatriates working in developed countries such as Singapore and Australia causes relative deprivation to those in much harsher areas. This is because expatriates in harsh environments have more crucial roles, such as coordinating the internal functions of a project and managing external customers: clients, suppliers, government officers, and others. (Bonache & Brewster, 2001).

## 2. Millennial Generation

Millennial scholars have divided generations in the workplace into four main categories: the Silent Generation (born 1925-1945), the Baby Boomers (born 1946-1964), Generation X (born 1965-1981), and Millennials (GenY, born 1982-2004). As the proportion of millennial employees in the workplace increases, a number of research has analyzed the characteristics of millennials that are different from those of previous generations. For example, Howe and Strauss (2000) propose millennials to be "special, vital, sheltered, confident, team-oriented, achieving, and conventional".

Millennials constantly develop capabilities while doing what they want, but their attachment or sense of belonging to the organization is not high. They have seen baby boomers fall victim to restructuring, despite showing loyalty to the organization by spending most of the day at work (Loughlin & Barling, 2001). In South Korea, baby boomers had to endure absolute poverty as children, and suffered from the IMF financial crisis while leading the country's rapid economic growth. They take working on holidays and working overtime for granted, which is why they consider work to be more important than their personal life (Samsung Economic Research Institute, 2010). Unlike the old generation, millennials do not just value work in their personal lives, but they

value work-life balance (Muskat & Reitsamer, 2020). They are reluctant to be dispatched to the Middle East because of family-related issues, as family members are a priority (Takeuchi, 2010). With their strong expertise, millennial workers may come to gain the bargaining power to reject the organization's unilateral demand for sacrifice (McDonald & Hite, 2008).

Moreover, millennial employees have realistic expectations of compensation (Ng et al., 2010). They think that the current salary and allowances are relatively low considering the poor working conditions in the Middle East. Monetary and non-monetary rewards from organizations, including base salary, allowances, and career development support, are critical for millennial expatriates to accept international mobility to the Middle East. Unlike the older generation, they recognize that the compensation level is not significantly high compared to being dispatched to other countries or staying in corporate headquarters. This harms the perception of imparity, since working in the Middle East involves much more difficulty due to the harsh environment. Furthermore, they think that the working experience in the Middle East is not helpful to their future career since overall, the expectation and passion of being promoted to higher positions in the organization has decreased over the decade (Ng et al., 2010).

## 3. Environment in the Middle East

Middle Eastern countries have unique cultural and geographical characteristics. In general, the temperature in the Middle East is very high, much of the land is desert, and people believe in Islam (Ali, 2001; Metcalfe, 2006). In addition, the economic and business foundation of Middle Eastern countries are mostly from natural resources such as crude oil since the 1940s (Abdalla & Al-Homoud, 2001). Below we suggest a table indicating how much the Middle East differs from South Korea in terms of culture, climate, and religion (Table 1). In particular, there is high cultural distance between South Korea and Middle Eastern countries in terms of power distance, uncertainty avoidance, individualism/collectivism, and masculinity/femininity (Hofstede, 1980). This may serve as a major reason for millennials to avoid working in Middle Eastern countries (Kim et al., 2022).

According to Table 1, South Korea and the Middle East are significantly different in many ways. With regard to religion, more than half of the South Korean population said they are non-religious. In the 2015 census, 27.6% of the population were Christians, and 15.5% were Buddhists (Ministry of Culture, Sports and Tourism and Korean Culture and Information Service, 2015, n. d.). However, almost all Middle East country residents are Muslims. In the Middle East, not only is freedom of religion is not guaranteed, but other religions are suppressed (Wilson Center, 2013). In terms of environment, the climate of South Korea is temperate, having four distinct seasons. On the other hand, Middle East countries have a desert climate with extremely high day-time temperatures that go up to 56 °C with a sharp drop at night (Weatherbase, 2020). South Korea and the Middle East are completely disparate in terms of language and industrial structure as well. While the official language of the Middle East is Arabic and the main economy is oil-based, the official language of Korea is Korean and its economy is mostly high-tech manufacturing (Statista, 2020). South Korea and Middle Eastern countries see large cultural distance in all categories. With regard to the 2019 Social Progress Index, Middle Eastern Countries show much lower scores (61st~90th) than South Korea (23rd), which means quality of life in South Korea is much better when it comes to basic human needs, foundation of well-being, and career opportunity (Social Progress Imperative, 2019). Moreover, the U.S. Department of State notes Middle Eastern countries as highly risky countries for travel, and the death rate of traffic accidents in the Middle East is more than twice to that of South Korea (WHO, 2018). Such an environment is directly related to the daily difficulties that workers face, which then cause family issues or the perception of reward insufficiency.

**Table 1.** Differences between Middle East Countries and South Korea

| | | South Korea | Saudi Arabia | UAE | Algeria | Kuwait | Iraq |
|---|---|---|---|---|---|---|---|
| Religion | | Various | Islam | Islam | Islam | Islam | Islam |
| Climate | | Temperate (Avg.13℃) | Desert Climate (Up to 56℃) | (Up to 50℃) | (Up to 50℃) | (Up to 45℃) | (Up to 51℃) |
| Language | | Korean | Arabian | Arabian | Berber, Arabian, French | Arabian | Arabian |
| Main Product | | Semi-conductor, IT Product | Oil, Gas | Oil, Gas | Oil, Gas | Oil, Gas | Oil, Gas |
| Cultural Distance | Power Distance | 60 | 95 | 90 | - | 90 | 95 |
| | Uncertainty avoidance | 85 | 80 | 80 | - | 80 | 85 |
| | Individualism/ collectivism | 18 | 25 | 25 | - | 25 | 30 |
| | Masculinity/ femininity | 39 | 60 | 50 | - | 40 | 70 |
| Social Progress Index (Quality of life and the wellbeing of society) | | 23th | 90th | 61st | 79th | N/A | N/A |
| Travel Risk Ratings (U.S. Department of State) | | - | Watch List | - | Watch List | - | High Risk |
| Road Fatalities Per 100,000 inhabits | | 9.8 | 28.8 | 18.1 | 23.8 | 17.6 | 20.7 |

## III. Methodology

### 1. Data Collection

We collected data from both interviews and archives. 21 interviews were conducted in the form of in-depth and semi-structured interviews. The interviewees were millennials that are project engineers, lead engineers, assigned engineers, or construction engineers (Table 2). All 21 interviewees were dispatched to Middle Eastern countries including Saudi Arabia, Morocco, Algeria, Qatar, Iraq, Kuwait, and the UAE. Two of the millennials were married when they were dispatched. All interviewees had to work in secluded desert areas away from the city center, even in countries known to be relatively modernized and open, such as the UAE and Qatar.

As the nature of our study is exploratory, we adopt a multiple case study method, which

**Table 2.** Interview Profiles

| No. | Company | Working Country | Generation & Age | Country of Prior International Assignments | Total Duration of International Assignment |
|---|---|---|---|---|---|
| 1 | A | Morocco | Millennial, 35 | - | 3 years |
| 2 | A | Algeria | Millennial, 35 | - | 3 years |
| 3 | A | Qatar | Millennial, 37 | - | 1 year |
| 4 | A | Qatar | Millennial, 34 | - | 3 years |
| 5 | A | Algeria | Millennial, 33 | - | 2 years |
| 6 | A | Algeria | Millennial, 32 | - | 8 months |
| 7 | B | UAE | Millennial, 33 | - | 1 year |
| 8 | B | UAE | Millennial, 33 | - | 1 year |
| 9 | B | Iraq | Millennial, 35 | Algeria | 3.8 years |
| 10 | B | UAE | Millennial, 37 | - | 3 years |
| 11 | B | UAE | Millennial, 37 | - | 6 months |
| 12 | B | Saudi Arabia | Millennial, 37 | - | 3 years |
| 13 | B | Saudi Arabia | Millennial, 35 | - | 2 years |
| 14 | B | Kuwait | Millennial, 34 | UAE, Saudi Arabia | 4 years |
| 15 | B | Algeria | Millennial, 38 | Saudi Arabia, Thai | 6 years |
| 16 | C | Iraq | Millennial, 26 | - | 5 months |
| 17 | C | Algeria | Millennial, 30 | - | 2 years 4 months |
| 18 | C | Algeria | Millennial, 24 | - | 5 months |
| 19 | C | Kuwait | Millennial, 25 | - | 2 years 3 months |
| 20 | C | Kuwait | Millennial, 26 | - | 2 years 1 month |
| 21 | C | Algeria | Millennial, 23 | - | 2 years 5 months |

is appropriate for understanding less known phenomena (Eisenhardt & Graebner, 2007; Yin, 2003). We selected three large EPC companies in South Korea (pseudonyms used - Company A, B, C) with considerable size and degree of internationalization. The total number of employees of the each firm is 4,600, 5,159, and 6,130, respectively. All companies' revenues in foreign markets constitute over 60% of total revenues.

Most interviewees have more than 10 years' experience in serving international assignments. We believe that this could explain why millennial employees are reluctant to accept international assignments in the Middle East. Interviews were carried out during three months from February

2020 to May 2021. Despite the risk of infection diseases, complicated entry procedures, and a long journey, two of the authors visited project sites in Saudi Arabia and the UAE. In particular, Saudi Arabia's culture was pinpointed to be substantially different from other cultural clusters (Abdalla & Al-Homoud, 2001). Millennials from the rest of the Middle Eastern countries were interviewed by e-mail. Two interviewers were directly involved in conducting interviews. Interviewees were informed that responses and identities would be kept confidential. Interviews lasted between 30~60 minutes. The questionnaires for the meeting were emailed to interviewees in advance so that they could understand the objectives of the interview. Our interviews were based on open-ended questions to encourage interviewees to speak in their own words. These questions covered the following topics:

- Why did you decide to work in the Middle East?
- Are millennials satisfied with work and life in the Middle East?
- What are the rewards you can expect after working in the Middle East?

### 2. Data Analysis Strategy

For analysis, we used Consensual Qualitative Research (CQR), which is based on grounded theory (Strauss & Corbin, 1998) and comprehensive process analysis (Elliott, 1989). As a well-known method to explain an inceptive phenomenon that yet has no theoretical ground, CQR is a data collection technique that is comprised of the following steps; (a) transform and organize responses to open ended questions into form of data; (b) several different research members make consensus on the meaning of the data; (c) using several analysis methods such as cross-analysis, the data is reduced into the different constructs of the domain and core idea; (d) and the frequency of each core idea is checked (Hill et al., 2005). For labeling the frequency of constructs, we used the idea of Hill et al. (1997). Each of the constructs was labeled as either "general", "typical", "variant" or "not frequent", with "general" being the construct that applies to all cases, "typical" applying to more than half of the cases, "variant" applying to at least two cases, and "not frequent" applying to only to a single case.

As an initial step, we read the written interview about five times and translated the sentences and meanings into words or concepts. Similar concepts were incorporated, and ambivalent concepts were divided. We then excluded unrelated concepts; such as when or why they were brought to the Middle East, leaving only concepts related to "what made them dislike the idea of being dispatched to the Middle East". Then, for frequency analysis, each concept was rated with how many they were referred to by the interviewees. The most frequently repeated concepts were chosen to be the main variable of the study. The concepts that were referred to only by one interviewee were excluded from analysis. Finally, the frequency of each construct was defined, and the relationships between variables were established. Along the entire process, three research members discussed and reached consensus before moving on to the next step.

## IV. Findings

When the interviewees were asked about the key factors influencing the reluctance to working abroad, the responses varied considerably. However, almost all interviewees agreed that they were fundamentally influenced by four key factors: i) harsh environment, ii) family, iii) limitations to one's life, and iv) lack of rewards from organizations (Table 3). Therefore, we put those four categories as core domains. Since the "Work" factor turned out not to be frequent, it was removed from the analysis. Then, 33 core ideas, which are the summary and specific meaning of the data, were derived. The data analysis results reveal the underlying reasons why millennial employees choose not to be dispatched to the Middle East, and what factor is considered to be the most significant.

**Table 3.** Summary of the CQR Results

| Domain | Core Idea | Frequency |
|---|---|---|
| Harsh Environment | Cultural distance | Typical |
| | Safety issues | Variant |
| | Inferior medical system | Variant |
| | Physically challenging | Not frequent |
| | Negative image of the host country | Not frequent |
| | Lack of infrastructure | Not frequent |
| | Lack of accessibility | Not frequent |
| Family | Lack of family support | Typical |
| | Distance from family | Variant |
| | Child education | Variant |
| Limitation to One's Life | Unable to enjoy entertainment/leisure | Typical |
| | Unable to engage in social activities | Variant |
| | Unable to distinguish life and work | Variant |
| | Inclination to value personal interests | Variant |
| | Sacrificing personal life | Variant |
| | Comparing to others | Variant |
| | Inclination to value current happiness | Variant |
| | Threats to safety and health | Not frequent |
| | Sense of isolation | Not frequent |
| | Use of foreign language | Not frequent |
| | Inclination to value personal life | Not frequent |
| | Not knowing when working in the Middle East would end | Not frequent |
| | Perception to be worse off than others | Not frequent |
| | Unable to invest in self-development | Not frequent |
| | Inclination to value the present/moment | Not frequent |
| Lack of Organizational Support | Insufficient financial compensation | Typical |
| | Insufficient support to career growth | Variant |
| | Lack of advantages for performance evaluation | Not frequent |
| | Disappointing management | Not frequent |
| | Insufficient perks and benefits | Not frequent |
| | Unable to engage in flexible commute | Not frequent |
| Work | Difficulties in work | Not frequent |
| | Cultural difficulties within work | Not frequent |

From the results, for the core ideas, "Cultural distance", "Lack of family support", "Unable to enjoy entertainment/leisure", and "Insufficient financial compensation" were typical constructs. "Safety issues", "Inferior medical system", "Distance from family", "Child education", "Unable to engage in social activities", "Unable to distinguish life and work", "Inclination to value personal interests", "Sacrificing personal life", "Comparing to others", "Inclination to value current happiness", and "insufficient support for career growth" were variant constructs, while all the others were not significant.

### 1. Harsh Environment in the Middle East and Unwillingness to Accept International Assignments

The first reason millennial expatriates avoid overseas work is that there are different cultural and safety issues in the foreign country. Different cultures and a harsh working environment may be serious challenges for millennial expatriates from South Korea. It is intensely hard for them to adapt to living and working in the Middle East (Faeth & Kitter, 2017). In particular, millennial expatriates from South Korea may face significant difficulties due to the harsh working environment and national differences, including culture, climate, and language. This may increase the isolation of living in an unfamiliar place as well as aspirations to be with their family, unlike the older generation who take working in harsh environments for granted.

In the Middle East, project sites are usually located in places that are considered to be barren, such as deserts or backwoods, and are far from the city. Therefore, regardless of the high allowance and benefits, millennials cannot tolerate the fact that they are in a remote place (Marston, 2009). To compensate for the hardship, the risk allowances, on-site allowances, and regular leave are not helpful enough.

> *"South Korea and countries like Algeria and Iraq are very different. So, young people never volunteer to come. We pay a little more for on-site work than employees in the HQs, but I don't think it's a big motivation."* (Project Engineer, Algeria, Company B)

### 2. Limitations on Millennials' Life in the Middle East and the Unwillingness to Accept International Assignments

Another challenge for millennials in working in the Middle East is that they have nothing special to enjoy in the Middle East. A typical characteristic of millennials is that they are egocentric and are attentive to work-life balance and personal enjoyment (Cennamo & Gardner, 2008). Millennials tend to look for an enjoyable work environment (Broadbridge et al., 2007), as well as a nurturing and supportive setting.

In addition, since they are more interested in personal lives (Twenge et al., 2010) and tend to "work to live" (Johnson & Johnson, 2010), millennials want to be faithful to their working hours, but also desire to stay away from their work during off-duty hours to enjoy their own time (Gong et al., 2018).

> *"As you can see, the UAE site is 400km away from the city, so it's hard to get into the city. The surrounding area is all desert, so there's not much for a foreigner to do. For this reason, young employees in particular tend to avoid working here."* (Deputy Project Manager, UAE, Company A)

> *"Algeria, where I worked, prohibits going outside the site area due to the risk of terrorism. Foreigners in the capital city are prohibited from moving. Therefore, there is no proper way to relieve the stress accumulated during work, and the internet speed is poor, so it is very limited to spend leisure time fruitfully. I think this is a very exhausting factor for employees."* (Project Engineer, Algeria, Company C)

### 3. Deficiency of Family Support, Being Away from Family, and the Unwillingness to Accept International Assignments

The family issue is also one of the key factors that causes millennial employees to hesitate to work in the Middle East. Most millennial expatriates are in a stage of starting a new family or starting to have serious relationships. Thus, it is common practice that an expatriate accompanies family or partners on the mission abroad (Haslberger & Brewster, 2008). A spouse and a family member of an expatriate are under severe stress in a culturally and linguistically unfamiliar environment when they are sent to a foreign country (Lazarova et al., 2010). Due to the harsh environment in the Middle East, the stress is multiplied (Wagner & Westaby, 2009). In addition, if family members decide to stay in the home country, they cannot see each other frequently, being exposed to potential conflicts (Bader et al., 2015). Unlike the older generation, who put work ahead of family, family issues can be a critical reason for millennials to hamper work in the Middle East.

Strong support from the organization can reduce employee stress levels, which leads to well-being (Bader, 2015). If an organization shows strong trust by providing support in caring for their families, employees also reciprocate the company's support with desirable actions and achievements (Chen et al., 2010). Specifically, organizations have to help the expatriate's family to adapt to the Middle East, which is culturally and geographically distant from South Korea.

> *"The issue of family support is important for the millennial generation in the Middle East, as they are often very young, even when they are dating or are married. As the amount of organizational support was reduced a lot, it is impossible for millennials to bring their family, and as a result, they miss their family too much. With improvements such as family support, some millennials may accept to be dispatched to the Middle East."* (Project Control Manager, Saudi Arabia, Company A)

In addition, the results identify that child education is one of the most important factors in deciding to work abroad (Riusala & Suutari, 2000). In particular, English education was a primary factor for South Koreans to decide on whether they should go abroad or not. Millennials think the education environment in the Middle East is especially poor compared to other countries.

> *"In the case of the Middle East, it is difficult to accompany family member as it is designated as the most dangerous area by the company. Even if it is possible to bring their family, it does not seem to have much advantage because there is no high-quality international school in terms of children's education."* (Construction Manager, Morocco, Company A)

## 4. Insufficient Rewards from Organizations

In a recent study, millennials regard salary as the most critical reward factor when deciding whether to work for a particular organization (Deloitte, 2016). Competitive salary is a crucial factor for a millennials (Hauw & Vos, 2010; Kuron et al., 2015). While constantly developing one's expertise, they also place importance on recognition within the organization, especially with promotions and rewards. They see promotions and rewards within the organization as positive feedback that the organization gives them (Ng et al., 2010). While the older generation sacrificed themselves for long term goals even with somewhat uncertain future rewards, the millennial generation prefers frequent, tangible, and immediate rewards (Twenge, 2006).

The fact that their salary is not high enough is another main reason to avoid working in the Middle East. As much as they suffer from a difficult environment, they want to be compensated with monetary rewards to make up for their difficulties.

> *"Compared to colleagues who are paid more and working in a good environment in South Korea, I think millennial expatriates will naturally avoid working in the Middle East. Currently, there is no benefit, just some points for promotion. I think that monetary/*

*non-monetary compensation with all possible methods of support from the company is necessary, such as high performance rating, and preference in promotions."* (Lead Engineer in Kuwait, Company B)

*"Basically, there seems to be a perception that working in the Middle East has been "experienced and worked hard," but it will be difficult for millennials to actively persuade future employees to work in the Middle East without additional compensation. Higher performance ratings than headquarters' work, monetary compensation, the longer vacation period, and better work-life balance than the HQ should be guaranteed."* (Project Engineer in Kuwait, Company C)

Millennial expatriates are so highly interested in personal development and promotion (Erickson, 2009) that they prefer challenging work that offers opportunities for advancement and long-term career progression (Terjesen et al., 2007). Millennial expatriates with previous international experience have higher chances of becoming a project or a business unit leader in the organization (Magnusson & Boggs, 2006). Career progression is an important motivational driver for Millennials (Wong et al., 2008). Millennials will avoid working in the Middle East if they continue to work in countries with poor conditions like the Middle East, or if they cannot have a chance to be promoted to higher positions.

Career development is the most important non-monetary reward. The older generation was able to be promoted to the executive level rather easily in the high growth period when internal competition was not fierce. The experience in the Middle East used to be a guaranteed route to become an executive. However, for millennials, working in the Middle East is not helpful to their future career anymore.

*"To do a project abroad is to create something out of nothing. This allows individuals to grow and see the details. International experience is essential to grow into a leader in an organization. Although the HQ is in South Korea, we have to explore overseas markets to grow. There isn't any executive without experience in projects abroad, especially in the Middle East, our main overseas market. But these days, as more people have worked in Singapore, work experience in the Middle East does not necessarily make them executives."* (Project Manager in Saudi Arabia, Company A)

## V. Discussion and Conclusion

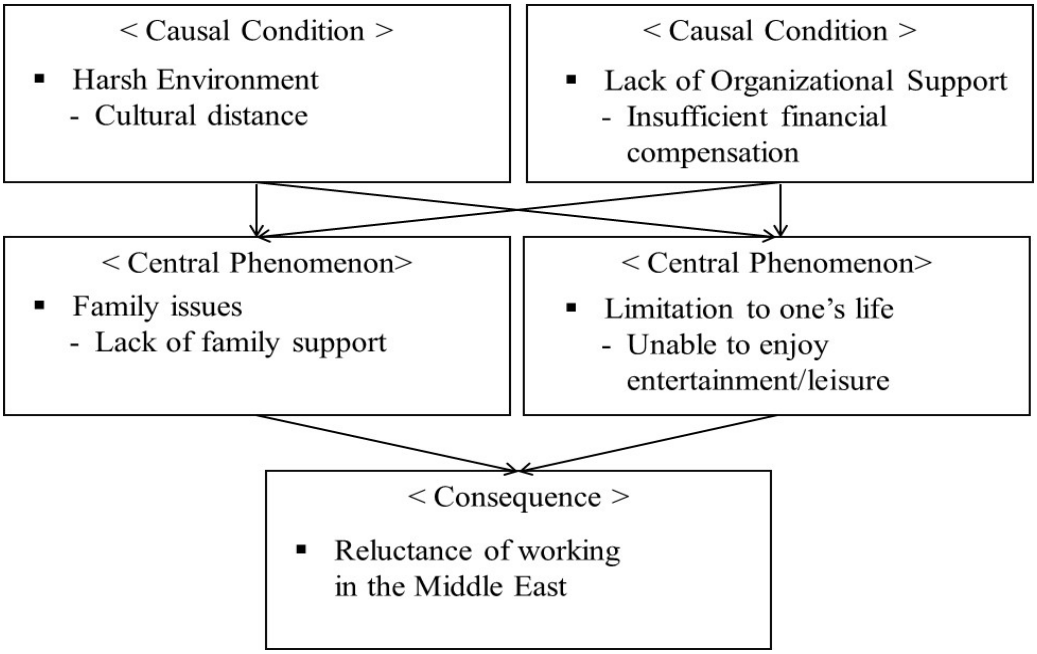
The map of cause and effect is shown in Fig. 1. The harsh environment in the Middle East constrains personal life and makes it hard for them to stay with their family. Moreover, monetary and non-monetary rewards are insufficient as well. These findings are in line with previous studies on antecedents of expatriate unwillingness to accept a global assignment (Konopaske & Werner, 2005; Stoermer et al., 2017).

### 1. Theoretical Contributions

This research makes contributions to both expatriation and millennial research. In the extant literature, little research explained employee relocation with expectancy theory. According to the expectancy theory, the millennial generation is not willing to accept international assignments in a hostile environment if the perceived benefits are insufficient, unlike the older generation.

Our study extends expectancy theory by adopting the concept of relative deprivation, individual psychological responses based on social comparisons with others rather than on the environment itself (Walker & Smith, 2002). That is, people tend to think highly of what they have contributed rather than of what others have (Brockner & Wiesenfeld, 1996). They tend to feel a relative sense of deprivation by comparing their situation to an extremely successful group. Our results show that if the compensation, family allowances, or promotion opportunities are not tantamount to the perceived difficulties of working

**Fig. 1.** Result of CQR Analysis




abroad, compared to expatriates in other countries or those in the HQ, they do not accept the offer to work in the Middle East.

In addition, in the field of generational studies, there has been a lack of research on the relationship between millennial attributions and working abroad, especially in the EPC industry. Traditionally, international assignments have been considered a key part of manager careers in MNEs (Adler, 2002). Although there is ample evidence that global skills and competencies can be developed through international assignments (Kobrin, 1988; Tung, 1998), many potential millennial candidates may not be willing to accept overseas assignments in the EPC industry (Harvey, 1996). Thus, it is vital for multinational EPC companies to manifest the factors hindering their willingness to accept global assignments by comparing millennials to the older generation. By suggesting the three antecedents of hostile environment, limitation on one's life, and insufficient rewards, we extend the literature on expatriation in MNEs.

## 2. Practical Contributions

In a practical sense, firstly, sufficient organizational support is needed for millennials working in Middle Eastern countries. Millennials are avoiding working in the Middle East compared to the older generation due to constraints of personal life, the harsh environment, and dissatisfaction with company support. It seems that South Korean EPC companies should identify the characteristics of these millennials and make adjustments to current HR practices, such as giving pay raises and career support (Hassan & Jambulingam, 2018). Allowances for long-term employees in remote parts of the Middle East should also be increased. It is necessary to give extra points for promotion for those that have worked in secluded areas.

However, most of all, the fundamental solution would be to hire and train talented local staff to reduce the number of South Korean millennials that are apparently reluctant to be dispatched to the Middle East (Paik & Sohn, 2004). Hiring

local employees is advantageous in that they have a high level of understanding of culture and the local business environment compared to expatriates, while also requiring only low labor costs (Alvarado-Vargas et al., 2020). The greater the number of excellent local employees, the more likely the EPC project will succeed.

### 3. Limitations and Future Research

There are several limitations to the study. First, due to the limits of qualitative research, validity and reliability can be raised about the interviews of overseas dispatchers. Since the study is based on interviews, there is a question of generalizability (Yin, 2003). We invite future research to prove our theory with statistical significance through quantitative research. Second, our data is collected from South Korean MNEs that competed successfully in global markets with wide geographical access in multiple subsidiary locations. However, the use of a single country sample inevitably raises concerns about generalizability (Gaur et al., 2007). Thus, future research should study companies from other countries (Qin et al., 2017). Third, our results show that compensation is one of the most critical factors for avoiding working in the Middle East; however, this result did not support evidence that millennial-aged Greeks place the most importance on intrinsic and social aspects of work, and less importance on extrinsic values (Papavasileiou & Lyons, 2015). These results can be interpreted such that the characteristics of millennials are influenced by national context.

Despite such limitations, our study is meaningful in that it investigated the EPC industry and millennial traits across various Middle Eastern countries, including Qatar, Morocco, Algeria, Oman, Iraq, and Kuwait.

## References

Abdalla, I. A., & Al-Homoud, M. A. (2001). Exploring the implicit leadership theory in the Arabian Gulf States. *Applied Psychology: An International Review*, *50*(4), 506-531. https://doi.org/10.1111/1464-0597.00071

Adler, N. J. (2002). *International dimensions of organizational behavior* (4th ed.). South-Western Thomson Learning.

Adler, N. J., & Bartholomew, S. (1992). Managing globally competent people. *Academy of Management Executive*, *6*(3), 52-65. https://doi.org/10.2307/4165078

Ali, A. J. (2001). The Islamic work ethic in Arabia. *Journal of Psychology*, *126*(5), 507-519. https://doi.org/10.1080/00223980.1992.10543384

Alvarado-Vargas, M. J., Hermans, M., & Newburry, W. (2020). What's in it for me? Local employees anticipated career opportunities derived from firm internationalization. *Journal of Business Research*, *117*, 201-211. https://doi.org/10.1016/j.jbusres.2020.06.003

Bader, B. (2015). The power of support in high-risk countries: Compensation and social support as antecedents of expatriate work attitudes. *International Journal of Human Resource Management*, *26*(13), 1712-1736. https://doi.org/10.1080/09585192.2014.962071

Bader, B., Berg, N., & Holtbrügge, D. (2015). Expatriate performance in terrorism-endangered countries: The role of family and organizational Support. *International Business Review*, *24*(5), 849-860. https://doi.org/10.1016/j.ibusrev.2015.03.005

Bonache, J., & Brewster, C. (2001). Knowledge transfer and the management of expatriation. *Thunderbird International Business Review*, *43*(1), 145-168. https://doi.org/10.1002/1520-6874(200101/02)43:13.0.CO;2-7

Bozionelos, N. (2009). Expatriation outside the boundaries of the multinational corporation: A study with expatriate nurses in Saudi Arabia. *Human Resource Management*, *48*(1), 111-134. https://doi.

org/10.1002/hrm.20269

Broadbridge, A., Maxwell, G., & Ogden, S. (2007). Experiences, perceptions and expectations of retail employment for generation Y. *Career Development International*, *12*(6), 523-544. https://doi.org/10.1108/13620430710822001

Brockner, J., & Wiesenfeld, B. M. (1996). An integrative framework for explaining reactions to decisions: Interactive effects of outcomes and procedures. *Psychological Bulletin*, *120*(2), 189-208. https://doi.org/10.1037/0033-2909.120.2.189

Buunk, B., & Janssen, P. (1992). Relative deprivation, career issues, and mental health among men in mid life. *Journal of Vocational Behavior*, *40*(3), 338-350. https://doi.org/10.1016/0001-8791(92)90055-5

Cagno, E., & Micheli, G. J. L. (2011). Enhancing EPC supply chain competitiveness through procurement risk management. *Risk Management*, *13*(3), 147-180. https://doi.org/10.1057/rm.2011.6

Cennamo, L., & Gardner, D. (2008). Generational differences in work values, outcomes and person-organisation values fit. *Journal of Managerial Psychology*, *23*(8), 891-906. https://doi.org/10.1108/02683940810904385

Chen, C. J., Ding, Y., & Kim, C. (2010). High-level politically connected firms, corruption, and analyst forecast accuracy around the world. *Journal of International Business Studies*, *41*(9), 1505-1524. https://doi.org/10.1057/jibs.2010.27

Chung, H., Kang, S., Moon, E., Park, J., Shon, M., & Lee, C. et al. (2010). *The effects and alternatives of baby boomers retirement: A comparison of main countries including US and Japan* (Research Report). Samsung Economic Research Institute.

Crosby, F. (1976). A model of egoistical relative deprivation. *Psychological Review*, *83*(2), 85-113. https://doi.org/10.1037/0033-295X.83.2.85

Deloitte (2016), *The 2016 Deloitte millennial survey: Winning over the next generation of leaders*. https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/gx-millenial-survey-2016-exec-summary.pdf

Dickmann, M., & Watson, A. H. (2017). I "might be shot at!" exploring the drivers to work in hostile environments using an intelligent careers perspective. *Journal of Global Mobility*, *5*(4), 348-373. https://doi.org/10.1108/JGM-12-2016-0066

Dragoni, L., Oh, I. S., Tesluk, P. E., Moore, O. A., VanKatwyk, P., & Hazucha, J. (2014). Developing leaders' strategic thinking through global work experience: The moderating role of cultural distance. *Journal of Applied Psychology*, *99*(5), 867-882. https://doi.org/10.1037/a0036628

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, *50*(1), 25-32. https://doi.org/10.5465/AMJ.2007.24160888

Ellemers, N., & Bos, A. E. R. (1998). Social identity, relative deprivation, and coping with the threat of position loss: A field study among native shopkeepers in Amsterdam. *Journal of Applied Social Psychology*, *28*(21), 1987-2006. https://doi.org/10.1111/j.1559-1816.1998.tb01357.x

Elliott, R. (1989). Comprehensive process analysis: Understanding the change process in significant therapy events. In M. J. Packer & R. B. Addison (Eds.), *Entering the circle: Hermaneutic Investigations in Psychology.* Suny Press.

Erickson, T. J. (2009, February). Gen Y in the workforce: How I learned to love millennials and stop worrying about what they are doing with their iPhones. *Harvard Business Review*. https://hbr.org/2009/02/gen-y-in-the-workforce-2

Faeth, P. C., & Kitter, M. G. (2017). Expatriate management in hostile environments from a multi-stakeholder perspective: A systematic review. *Journal of Global Mobility*, *8*(1), 1-24. https://doi.org/10.1108/JGM-07-2019-0035

Feldman, D. C., & Turnley, W. H. (2004). Contingent employment in academic careers: Relative deprivation among adjunct faculty. *Journal of Vocational Behavior*, *64*(2), 284-307. https://doi.org/10.1016/

j.jvb.2002.11.003

Fudge, R. S., & Schlacter, J. L. (1999). Motivating employees to act ethically: An expectancy theory approach. *Academy of Management Journal*, *18*(3), 295-304. https://doi.org/10.1023/A:1005801022353

Gaur, A. S., Delios, A., & Singh, K. (2007). Institutional environments, staffing strategies, and subsidiary performance. *Journal of Management*, *33*(4), 611-636. https://doi.org/10.1177/0149206307302551

Gong, B., Greenwood, R. A., Hoyte, D., Ramkissoon, A., & He, X. (2018). Millennials and organizational citizenship behavior: The role of job crafting and career anchor on service. *Management Research Review*, *41*(7), 774-788. https://doi.org/10.1108/MRR-05-2016-0121

Harrison, E. C., & Michailova, S. (2012). Working in the Middle East: Western female expatriates' experiences in the United Arab Emirates. *International Journal of Human Resource Management*, *23*(4), 625-644. https://doi.org/10.1080/09585192.2011.610970

Haslberger, A., & Brewster, C. (2008). The expatriate family: An international perspective. *Journal of Managerial Psychology*, *23*(3), 324-346. https://doi.org/10.1108/02683940810861400

Hassan, M., & Jambulingam, M. (2018, October 19). Trends of turnover & adopting soft HRM strategies for the retention of millennials: Requirement of 21st century. *The 9th International Conference on Modern Research in Management, Economics and Accounting.* Athens, Greece.

Harvey, M. G. (1996). Addressing the dual-career expatriate dilemma. *Human Resource Planning*, *19*(4), 18-39.

Hauw, S. D., & Vos, A. D. (2010). Millennials' career perspective and psychological contract expectation: Does the recession lead to lowered expectation? *Journal of Business and Psychology*, *25*(2), 293-302. https://doi.org/10.1007/s10869-010-9162-9

Hill, C. E., Thompson, B., & Williams, E. N. (1997). A guide to conducting consensual qualitative research. *The Counseling Psychologist*, *25*(2), 517-572. https://doi.org/10.1177/0011000097254001

Hill, C. E., Knox, S., Thompson, B. J., Williams, E. N., & Hess, S. A. (2005). Consensual qualitative research: An update. *Journal of Counseling Psychology*, *52*(2), 196-205. https://doi.org/10.1037/0022-0167.52.2.196

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Sage.

Howe, N., & Strauss, W. (2000). *Millennials rising: The next great generation*. Vintage Book.

Johnson, M., & Johnson, L. (2010). *Generations.* Amacom.

Kim, C., Chung, C., & Brewster, C. (2022). MNE subsidiary managers' international work experience and advice networks: The moderating role of cultural distance. *Journal of Global Business and Trade*, *18*(1), 77-96. http://dx.doi.org/10.20294/jgbt.2022.18.1.77

Kobrin, S. J. (1988). Expatriate reduction and strategic control in American multinational corporations. *Human Resource Management*, *27*(1), 63-75.

Konopaske, R., & Werner, S. (2005). US Managers' willingness to accept a global assignment: Do expatriate benefits and assignment length make a difference?. *International Journal of Human Resource Management*, *16*(7), 1159-1175. https://doi.org/10.1080/09585190500143998

Kuron, L. K. J., Lyons, S. T., Schweitzer, L., & Ng, E. S. W. (2015). Millennials' work values: Differences across the school to work transition. *Personnel Review*, *44*(6), 991-1009. https://doi.org/10.1108/PR-01-2014-0024

Lau, E., & Rowlinson, S. (2011). The implications of trust in relationships in managing construction projects. *International Journal of Managing Projects in Business*, *4*(4), 633-659. https://doi.org/10.1108/17538371111164056

Lazarova, M., Westman, M., & Shaffer, M. A. (2010). Elucidating the positive side of the work-family interface on international assignments: A model of expatriate work and family performance. *Academy of Management Review*, *35*(1), 93-117. https://doi.org/10.5465/AMR.2010.45577883

Loughlin, C., & Barling, J. (2001). Young workers' work values, attitudes, and behaviors. *Journal of Occupational and Organizational Psychology*, *74*(4), 543-558. https://doi.

org/10.1348/096317901167514

Magnusson, P., & Boggs, D. J. (2006). International experience and CEO selection: An empirical study. *Journal of International Management*, *12*(1), 107-125. https://doi.org/10.1016/j.intman.2006.01.002

Marston, C. (2009). *Myths about millennials: Understand the myths to retain millennials*. Humanresources. http:// humanresources.about.com/od/managementtips/a/millennial_myth.htm

Masi, D., Micheli, G. J. L., & Cagno, E. (2013). A meta-model for choosing a supplier selection technique within an EPC company. *Journal of Purchasing & Supply Management*, *19*(1), 5-15. https://doi.org/10.1016/j.pursup.2012.07.002

McDonald, K., & Hite, L. (2008). The next generation of career success: Implications for HRD. *Advances in Developing Human Resources*, *10*(1), 86-103. https://doi.org/10.1177/1523422307310116

Metcalfe, B. D. (2006). Exploring cultural dimensions of gender and management in the Middle East. *Thunderbird International Business Review*, *48*(1), 93-107. https://doi.org/10.1002/tie.20087

Ministry of Culture, Sports and Tourism and Korean Culture and Information Service. (2015, n. d.). *Korean life: religion*. http://www.korea.net/AboutKorea/Korean-Life/Religion

Muskat, B., & Reitsamer, B. F. (2020). Quality of work life and generation Y: How gender and organizational type moderate job satisfaction. *Personnel Review*, *49*(1), 265-283. https://doi.org/10.1108/PR-11-2018-0448

Ng, T. W. H., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology*, *58*(2), 367-408. https://doi.org/10.1111/j.1744-6570.2005.00515.x

Ng, E. S., Schweitzer, L., & Lyons, S. T. (2010). New generation, great expectations: A field study of the millennial generation. *Journal of Business and Psychology*, *25*(2), 281-292. https://doi.org/10.1007/s10869-010-9159-4

Nielsen, S. (2010). Top management team internationalization and firm performance: The mediating role of foreign market entry. *Management International Review*, *50*(2), 185-206. https://doi.org/10.1007/s11575-010-0029-0

Olson, J. M., Roesesc, N. J., Meen, J., & Robertson, D. J. (1995). The preconditions and consequences of relative deprivation: Two field studies. *Journal of Applied Social Psychology*, *25*(11), 944-964. https://doi.org/10.1111/j.1559-1816.1995.tb02384.x

Paik, Y., & Sohn, J. D. (2004). Expatriate managers and MNC's ability to control international subsidiaries: The case of Japanese MNCs. *Journal of World Business*, *39*(1), 61-71. https://doi.org/10.1016/j.jwb.2003.08.003

Papavasileiou, E. F., & Lyons, S. T. (2015). A comparative analysis of the work values of Greece's 'millennial' generation. *International Journal of Human Resource Management*, *26*(17), 2166-2186. https://doi.org/10.1080/09585192.2014.985325

Qin, C., Wang, Y., & Ramburuth, P. (2017). The impact of knowledge transfer on MNC subsidiary performance: Does cultural distance matter?. *Knowledge Management Research & Practice*, *15*(1), 78-89. https://doi.org/10.1057/kmrp.2015.24

Riusala, K., & Suutari, V. (2000). Expatriation and careers: Perspectives of expatriates and spouses. *Career Development International*, *5*(2), 81-90. https://doi.org/10.1108/13620430010318945

Rosa, N. M. B., & Hastings, S. O. (2018). Managing millennials: Looking beyond generational stereotypes. *Journal of Organizational Change Management*, *31*(4), 920-930. https://doi.org/10.1108/JOCM-10-2015-0193

Roth, K. (1995). Managing international interdependence: CEO characteristics in a resource-based framework. *Academy of Management Journal*, *38*(1), 200-231. https://doi.org/10.2307/256733

Samsung Economic Research Institute. (2010). *The effects and solutions of retirement of baby boomer generation: Including major countries (U.S. and Japan) comparisons*. https://50plus.or.kr/upload/im/2017/12/c222879c-59a9-424e-9b04-0b6f98e50663.pdf

Segerstedt, A., & Olofsson, T. (2010). Supply chains in the construction industry. *Supply Chain Management: An International Journal*, *15*(5), 347-353. https://doi.org/10.1108/13598541011068260

Social Progress Imperative. (2019). *2019 Social progress index*. https://www.socialprogress.org/?code=KOR

Stahl, G. K., Chua, C. H., Caligiuri, P., Cerdin, J. L., & Taniguchi, M. (2009). Predictors of turnover intentions in learning-driven and demand-driven international assignments: The role of repatriation concerns, satisfaction with company support, and perceived career advancement opportunities. *Human Resource Management*, *48*(1), 89-109. https://doi.org/10.1002/hrm.20268

Statista. (2020). *Middle East oil industry: Statistics & facts*. https://www.statista.com/topics/6508/middle-east-oil-industry/

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Grounded theory procedures and techniques.* Sage.

Stoermer, S., Davies, S. E., Bahrisch, O., & Portniagin, F. (2017). For sensation's sake: Differences in female and male expatriates' relocation willingness to dangerous countries based on sensation seeking. *Journal of Global Mobility*, *5*(4), 374-390. https://doi.org/10.1108/JGM-11-2016-0061

Sweeney, P. D., McFarlin, D. B., & Inderrieden, E. J. (1990). Using relative deprivation theory to explain satisfaction with income and pay level: A multi study examination. *Academy of Management Journal*, *33*(2), 423-436. https://doi.org/10.2307/256332

Takeuchi, R. (2010). A critical review of expatriate adjustment research through a multiple stakeholder view: Progress, emerging trends, and prospects. *Journal of Management*, *36*(4), 1040-1064. https://doi.org/10.1177/0149206309349308

Terjesen, S., Vinnicombe, S., & Freeman, C. (2007). Attracting generation Y graduates: Organizational attributes, likelihood to apply and sex differences. *Career Development International*, *12*(6), 504-522. https://doi.org/10.1108/13620430710821994

Toh, S. M., & Denisi, A. S. (2003). Host country national reactions to expatriate pay policies: A model and implications. *Academy of Management Review*, *28*(4), 606-621. https://doi.org/10.5465/AMR.2003.10899387

Twenge, J. M. (2006). *Generation Me: Why today's young Americans are more confident, assertive, entitled and more miserable than ever before.* Free Press.

Twenge, J. M., Campbell, S. M., Hoffman, B. J., & Lance, C. E. (2010). Generational differences in work values: Leisure and extrinsic values increasing, social and intrinsic values decreasing. *Journal of Management*, *36*(5), 1117-1142. https://doi.org/10.1177/0149206309352246

Tung, R. L. (1998). American expatriates abroad: From neophytes to cosmopolitans. *Journal of World Business*, *33*(2), 125-144. https://doi.org/10.1016/S1090-9516(98)90002-5

Vroom, V. H. (1964). *Work and motivation*. Wiley.

Wagner, M. R., & Westaby, J. D. (2009). The willingness to relocate to another country: The impact of cultural similarity, destination safety, and financial incentive. *International Journal of Psychology*, *44*(4), 257-265. https://doi.org/10.1080/00207590701750920

Walker, I., & Smith, H. J. (2002). *Relative deprivation: Specification, development, and integration.* Cambridge University Press.

Weatherbase. (2020). *Cities weather worldwide.* https://www.weatherbase.com

Wilson Center. (2013). *US report on religious freedom in Middle East*. https://www.wilsoncenter.org/article/us-report-religious-freedom-middle-east

Wong, M., Gardiner, E., Lang, W., & Coulon, L. (2008). Generational differences in personality and motivation: Do they exist and what are the implications for the workplace?. *Journal of Managerial Psychology*, *23*(8), 878-890. https://doi.org/10.1108/02683940810904376

WHO. (2018). *Global status report on road safety 2018*. https://www.who.int/violence_injury_prevention/road_safety_status/2018/en/

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Sage.

The Journal of Global Business and Trade

ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.75

Journal of Global Business and Trade

https://www.pfw.edu/jgbt

# A Study on Humanity Management: Theory and Model

**Wan-Hyung Lee**[a]

[a] *Department of Global Trade and Logistics, Seoul Cyber University, South Korea*

*Received 30 May 2022, Revised 15 July 2022, Accepted 9 August 2022*

**ABSTRACT**

**Purpose –** This study presents a theory and model of humanity management with the research question of "Where should management head for new paradigms such as ESG, social value management, global environment, and digital innovation today?"

**Design/Methodology/Approach –** This study was based on literature research. Existing related prior research was examined and used to formulate a theory on humanity management. The central concept discovered in previous research was "humanity" is concerned with humans in areas such as life, community, social responsibility, connection between people, empathy, sensibility, emotion, resilience, agility, good for business and profit, respect for humans and nature, ethics about nature and machinery, and interactions between technology and people.

**Findings –** The result of this study is as follows. Humanity management model consists of three levels. The first is the 'mission level'. Its core value is 'life'. The second is the 'management level'. At this level, ethical management, environmental management, and technological management are organically connected and integrated. The third is the 'implementation level'. It consists of nine implementation strategies.

**Research Implications –** This study is meaningful in that it attempted to theoretically establish humanity management as a new management paradigm. However, there is a limitation in that many variables were not considered in constructing the theory due to a lack of empirical studies as well as previous literature studies.

***Keywords:*** coexistence of human-machine-environment, humanity, humanity management, life, model of humanity management

***JEL Classifications:*** L10, M10, M14, Z10

[a] *E-mail: wanhlee@iscu.ac.kr*

# I. Introduction

## 1. Background of Humanity Management

The recent business environment is strongly demanding a change in the management paradigm. In addition, the COVID-19 pandemic has provided serious issues about human survival as well as healthy life in the global environment. The global climate crisis has forced the international community to seek new alternatives for the carbon neutral declaration and energy use, which has become a core task in management.

For example, ESG management became a new direction of management. Along with active discussions around the world, various efforts are being made on how to realize this in management. This is an absolutely new wave of management. Management is changing from value centered on the company in the industrial era to a new value centered on communities. This phenomenon has become possible with the connection and participation of the sharing economy and the platforms of today's digital economy. This brings new needs for the community, not just a view of maximizing profits. The survival and growth of earth and human beings has become the goal of global society. Management is no longer all about achieving goals as a result of individual companies. Rather, in the process of generating profits, 'what do companies value in the process of management activities?' has become an important issue. In particular, what recent corporate management refers to is not just product-oriented values, it also includes ESG and carbon neutrality.

The new direction of business management is toward humanity. Any new business will lose its persuasiveness if these changes are viewed as merely a tool for new enhancements. This new paradigm is not just for improving functions, but for reflecting changes in society as well as changes in business models. The technological innovation and global environment facing mankind are recognizing the importance of human identity and existence. Therefore, the need for new ideas and approaches to management has increased.

## 2. Necessity of Humanity Management

The WEF investigated and announced the most serious crises globally over the next decade through 'The Global Risks Report 2022'. Among the top 10 most severe risks, environmental factors ranked at the top with a total of five (climate action failure, extreme weather, biodiversity loss, human environmental damage, and natural resource crises), followed by social factors at three (social cohesion erosion, livelihood crises, and infectious diseases). The rest are geographic and economic crises (WEF, 2022). This warns of a severe crisis not only in the current global environment but also for future human life.

In the meantime, internal and external factors of the company have been important variables that affect performance when analyzing management and establishing strategies. Digital innovation was considered an important internal factor, and the environment surrounding the company was considered an important external factor. However, today, innovation and environment have become fundamental core variables of corporate management, not reference variables in business. The management logic formed in the industrial era has been result-oriented. Realizing maximum profits through products was the best value in corporate management. A company's success or failure was determined by expanding market share and implementing market penetration strategies well, along with positioning itself with comparative and competitive advantages over competitors.

However, is this management logic still valid today? Mass production and marketing in the industrial era are being transformed into individual customized management in the digital economy. Moreover, the intelligence of machines has confused human identity, and eco-friendly management caused by the climate crisis are asking for new businesses that have never existed prior. Companies have faced new challenges and execution capabilities in organizational and management activities such as ESG, carbon neutrality, environmental recovery, artificial intelligence, flexibility, and agility. Now, what is the direction and ultimate goal of these new

management issues? That is the key question of this study.

These new change factors strongly demand that the management paradigm be changed, and this new paradigm must reflect a management model suitable for the era of human-machine-environment coexistence.

Therefore, the goal of this study is to design a management direction that reflects a new paradigm in which humans, machines, and environments coexist. This is defined as humanity management, and a theory and model is presented.

## II. Literature Review

### 1. Management and Humanity

Currently, domestic and foreign research on humanity management is still in its early stage. Of course, there are many studies on humanity in other academic fields, but the field of humanity management is relatively young.

Camillus et al. (2017) suggested the necessity of humanity management as a business model in terms of sustainability as well as social responsibility from a long-term perspective. It emphasizes humanity as a driver of the economy, environment, and sustainability. "Humaneness" and "Humankind" are considered major factors of humanity, and are presented as the core of the business model. Management that realizes humaneness is as follows. First, corporate efficiency is safety that can improve people's situations. Second, it is the quality in terms of building sustainable viability. Third, it is environmental sustainability strengthening profitability through social responsibility. This allows environmental management to enhance the financial performance of a company by endogenizing innovation (Klassen & Mclaughlin, 1996). The direction of the company suggests that humanity should be considered. The best companies are those that follow the "right thing to do," "good for business", and "good for profits" (Camillus, 2009), not just the top company.

Cash and Trezona (2021) explained the transformation direction of corporate management with the 'golden triangle' model. He revealed that he would move from a company that values only 'products and customers' to a company that speaks with 'emotion', emphasizing that the most important thing for a company is people, not products or speed. Recognizing and impressing customers is the central value of this model. This means the company's brand is no longer product-centered, but human-centered. The value of the community in which customers participate is the brand of the company, and the value of the brand depends on humanization (Gil, 2021). From this perspective, corporate management changes from 'make-and-sell' to 'a sense-and-response' that responds immediately to customers (Korhonen & Halen, 2017). This means responding to unpredictable customer situations, connecting modular relationships rather than sequential processes, adaptive business rather than planned strategies, and shared-level distributed decisions. Therefore, technology must enable new customer experiences in an era where humans and machines coexist. Technology should be able to complement humanity. (Kotler et al., 2021).

Technological capabilities further complement human life and activities. It is possible to utilize the 'sensorimotor', like a perception and reaction, to the surrounding environment with technology. The commercial use of technologies such as virtual reality, holograms, and brain-computer interfaces has made it easier to augment or replicate innately human sensory experiences. However, with the increased possibility of confusing the real with the virtual, human nature is a perpetual task and a value to be protected and defended (Leonhard, 2016).

In the digital age, the framework of humanity consists of cognitive, social, emotional, and ethical (Yamamoto & Ananou, 2015). When humans use technology, the key is 'how to interact with technology', and the decision to select technology is made according to the degree of sympathy. This is because humans develop values through learning and emotion in social situations. Sustainable management is trust between people and technology. 'Trust' is sustainability, and it has

meaning in the ecological, economic, and social dimensions (Osburg & Lohrmann, 2017).

Trust creates reputation, and the trust framework forms a 'trust stack' based on a collaborative economy. People are the center of the trust layer that makes up the trust stack. Through mutual interaction, trust is built, and the basis of this trust is 'empathy ability'. Leadbeater (2014) emphasized that building trust is possible with the combination of a system and empathy. Systems combine components and build processes and methods to achieve a common goal, but to rely on empathy to function. Empathy enables the best systems through insight, affinity, rapport, common understanding, collaboration, and sharing. When a strong system and high empathy meet, an appropriate response at scale is the best human-centered state. As the system develops, value creation becomes possible through relationships and interactions.

Humanity management is not just a superficial concept centered on people, but a concrete concept when empathy, insight, communication, cooperation, and sharing become abundant. This nature becomes richer when digital technology is applied from a humanity perspective.

## 2. Limitations of Data-Driven Management

These are studies on the limitations of technology management, especially in the management of scientific approaches such as big data. These studies raise questions of relying on a data science approach.

Joshi et al. (2021) analyzed and studied three private banks in India for five mistakes in a data science project. More and more companies are explaining why they cannot continue to create business value even after making large-scale investments in big data, artificial intelligence, and machine learning. First, it refers to cases where they are overwhelmed by technology and fail to grasp the business context, where they are too focused on scientific solutions to gain business value. Even if it is based on the basis of scientific data in management, the business cannot necessarily succeed. Second, it is a case in which the bias of the source is not recognized. It is biased in the process of collecting information for data. The anti-bias process must be paralleled. Third, the scientific solution is correct, but the timing is wrong. If the priorities of data science and business do not align well, all scientific solutions are no longer valid. An alternative solution to this is people. Fourth, the tool of analysis is correct but the user is wrong. New products and services customized by the tool are provided to customers, but the expected new business opportunities do not arise. The reason is not a business method, but because there are no 'people' at the center. The result of failing to incorporate data science activities into a human-centered design frame is another problem that customers cannot accept, no matter how well a tool provides analysis results. In this regard, it is necessary to re-establish human-centered business through design thinking. Fifth, the last mile that is not easy. Discrepancies between the expectations of data scientists and business teams often arise. From what is ultimately delivered to the customer, there is a need for sharing and collaboration between digital technologies and teams in business in real life situations.

Kotler et al. (2021) viewed the modern business environment as the Market 5.0. The technology applied to the business should be directed at humanities. The points that technology should aim for humanity are as follows. First, there is a generation gap. Technology should compensate for the differences caused by the coexistence of various generations such as baby boomers and the MZ generations. Second, an inclusive and sustainable society should be possible due to the polarization of wealth. Technology must be able to complement this. Third, there is a digital divide between people. Technology must be developed from the personal, social, and experience perspectives. Technology must take into account human characteristics, and technology is successful when harmonized with humans.

Ermakova et al. (2021) also studied why data-driven businesses fail. First, from the lack of an understanding of the business context and user

needs; second, the quality of data collected; and third, data access problems are cited. There is a conceptual gap between business strategies and implementation by analysis solution. Therefore, for best statistical execution, data should be optimized, including identifying business needs, team, securing necessary talent, technology and certification, stakeholder involvement, and culture creation (Liu et al., 2018; Wilson, 2005). Digital transformation does not just pursue cutting-edge new technologies. A study by Cap Gemini and MIT Sloan on the implementation of digital transformation found that most companies were initially active in digital initiatives, but very few were successful (CAP Gemini Consulting and MIT Sloan, 2012). Successful companies differ in digital maturity, especially in the creation of leadership capabilities. Business success is when innovative business vision and governance are linked to people, processes, and technology, which generate continuous investment and results in business performance.

### 3. Review Summary

The important concepts behind humanity management derived from previous studies are as follows. Humanity management's sustainability should consider economic, environmental, cognitive, social, emotional, ethical, trust, and interactions between technology and people. Furthermore, the implementation of humanity management is accompanied by corporate responsibility to ensure human safety and hygiene, and is required in all processes. In particular, the technical capabilities concentrated in all systems of production must be matched with human sensibility and interrelationships. The choice of management strategies should be considered individually in terms of the economic, social, and cognitive aspects of emotions and needs, away from just one-dimensional approaches to matching products to customers. Design Thinking enables the transition to humanity management by providing solutions to find and analyze these problems.

Digital technology discovers that its direction should be toward 'human' rather than function. Accordingly, corporate management is changing from a 'make-and-sell' perspective to 'a sense-and-response' perspective. This enables the theoretical background of humanity management in that 'trust' is the basis between companies and humans, humans and machines, and humans and the environment.

## III. Theory and Model of Humanity Management

### 1. Challenge for Humanity Management

In the era of coexistence of humans, machines, and the environment, today's management faces new challenges.

First, what is management that restores the global environment destroyed as well as human health and safety due to environmental destruction and climate crisis? Second, what kind of management should be placed above the functional and convenient technical use with the intelligence of machines? Third, how can management harmonize human survival and social development? Fourth, what is the technology management that digital technology innovation should aim for? These are research questions to consider in humanity management.

### 2. Concept of Humanity Management

Humanity management is a new value that considers human nature and the nature of human existence. It is an expanded concept rather than human-centered management for only humans. It includes the survival and recovery of animals, plants, and nature as well as humans. Therefore, corporate management aims for 'good for profits' through the 'right thing to do' and 'good for business'.

In planning and executing business activities, environmental factors are no longer just external conditions, but themselves are the objects of management. All living things that have adapted to the environment are in serious crisis when there

are serious changes in the environment (Taylor, 2011, 2020, 15-65).

Humanity management realizes respect for human beings and the natural environment, and to preserve and restore human existence and natural life using technological capabilities. Therefore, Humanity Management is a business that achieves the value of life in the application of technology as well as respect for humans and nature.

## 3. Model of Humanity Management

According to management strategy theories, the model in which a company establishes and executes strategies follows a series of procedures. It is a model that establishes a mission as a goal of management, adopts appropriate strategies through analysis of the internal and external environments of a company, and finally, executes strategies and feeds them back into the mission (Aaker, 1995; Yip, 1995). The BSC (Balanced Score Card), a representative model for measuring corporate performance, follows a similar procedure. This model also sets the company's vision and mission as goals and executes them from the four perspectives (financial, customer, internal process, learning and growth) of financial and non-financial factors (Kaplan & Norton, 1996).

Humanity management in this study also consists of three strategic levels by applying this series of procedures. That is, the first is the mission level, the second is the management level, and the third is the implementation level. The core value of 'the mission level' at the center of the model is 'life'. This is the goal of humanity management and the source of feedback. Although each company has different missions depending on the business, the core value should be placed on 'life'.

Next, 'the management level' of the middle circle is the intersection where the three circles meet based on technological innovation. At this level, ethical management, environmental management, and technological management are organically connected and integrated, and are the basis for carrying out 'the implementation level'.

The outermost doughnut-shaped 'implementation level' has nine practical strategies. Implementation strategies are embodied and connected in the direction of ethical management, environmental management, and technological management. In addition, they are always converged and feed back into the mission level, 'life'.

### 3.1. Mission Level

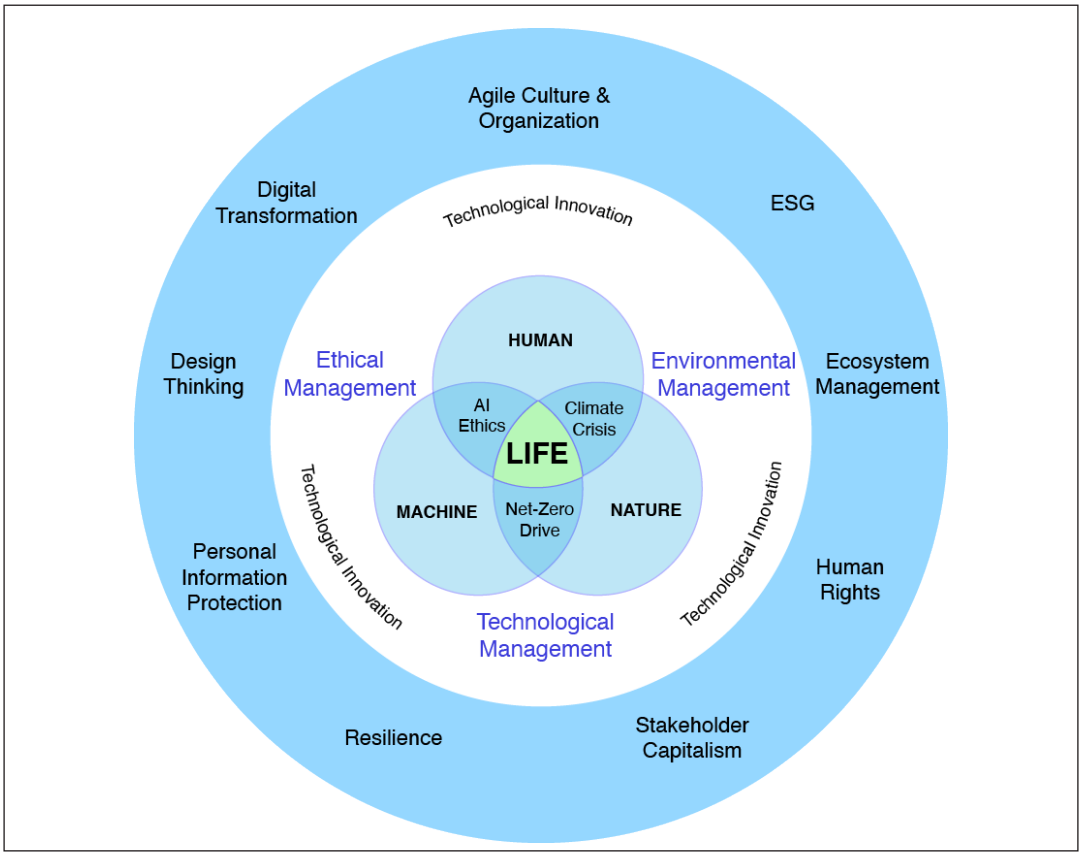
At the mission level of humanity management, the core value is 'life' (centered on Fig. 1). The essence of life is survival and persistence. Also, an attribute of life is relationships, so to give relationships up is to give life up (Kim, 2003). The relationship of life is evidenced by love. The meaning of love in management means respect for people, animals and plants, and nature. This respect is reflected in all business activities as well as in products and services. When a company produces a product, it sets the most basic value to have a good influence on nature as well as those who use it. If a company builds on the value of life in its production process, it will not damage nature or use harmful substances as materials, and will consider on how this affects people and nature even after the product is delivered. The product is not terminated as delivered to the consumer after it has been produced. Management that respects life is realized through the three levels of cyclical feedback presented in this framework.

In this model, 'life' is embodied and organically integrated into management level. It is the standard and goal of doing business at the implementation level. When applying artificial intelligence machines to management through technological innovation, the reference and goal points are respect for life and nature. 'Life', a mission of humanity management, is embodied in strategies at the management level and implementation level.

### 3.2. Management Level

There are three key issues that conflict when humans, machines, and environments coexist together. First is the establishment of AI ethics in the coexistence of humans and machines; second, the response to the climate crisis in the coexistence of humans and nature; and third, the achievement

**Fig. 1.** The Humanity Management Framework




of net-zero in the coexistence of machines and nature.

As a management response to these issues, the 'management level' of humanity management (the middle of Fig. 1) is applied to ethical management, environmental management, and technological management. These three are fundamentally based on technological innovation. Digital technological innovation caused by the 4th industrial revolution is the basis for explaining today's society. This is because technological innovation is already recognized as a new economic order beyond its technological significance. Therefore, technological innovation is the core of the business model in management. The three should be able to provide solutions to key issues (AI ethics, climate crisis, achievement of net zero) in an organically connected and integrated dimension, and ultimately converge at the 'mission level', life, and provide feedback too.

First, ethical management means that when applying technology to management, it should not focus on only human convenience and practicality. In order to realize the value of the common good for humans and nature, technology management and environmental management must be integrated and implemented. Second, environmental management should be embodied in the execution of business, such as the transition to a circular economy to overcome the climate crisis, resource utilization, and modification of business goals. Ethical management and technological management should be integrated and implemented, and the management perspective

should be changed to ecosystem management (Lee, 2021). Third, technological management is applied to achieve net-zero to restore the environment. Technical capabilities to overcome global warming, energy alternative technology, and the development of eco-friendly materials should be implemented in connection with ethical and environmental management.

### 3.3. Implementation Level

As the core value of this model, life is an orientation that enables nine implementation strategies through an integrated connection of ethical management, technological management, and environmental management. This implementation strategy is derived from the mission and management levels of theoretical research and include the following: (i) survival and sustainability of human and environment as a right-doing business, (ii) quality of management as a process, not as a result of products and services, (iii) responsibility of companies to realize environmental preservation and environmental restoration, (iv) more sanitary, safe, and healthy corporate management through digital technology innovation, (v)flexible management thinking and corporate organization, and (vi) practical strategy for realizing life in which humans, machines, and environments coexist. The nine implementation strategies are: Agile Culture & Organization, ESG, Ecosystem Management, Human Rights, Stakeholder Capitalism, Resilience, Personal Information Protection, Design Thinking, and Digital Transformation.

#### *3.3.1. Agile Culture & Organization*

Agile culture and organizations, in the sense of implementing humanity management, enable more flexible and vibrant organizations. Corporate responsiveness in terms of digital transformation has three key elements. The first is velocity. This means speed as a reflex force that can make the organization agile and respond immediately to changes in the environment. Second is focus. This refers to the transformation of the company into a purpose-oriented enterprise. It focuses on agile execution and a flexible strategy. In other words, it is the ability to respond sensitively to changes. Third is flexibility. This refers to corporate governance, which is governance that enables rapid decision-making and a culture of moving quickly with small teams with an agile organizational structure (Perkin & Abraham, 2017).

A prerequisite for an agile organization is to leverage digital technology to build diverse and flexible systems within the organization. In humanity management, the system within the organization is based on the empathy of human beings. Empathy enables a human-centered responsive at scale. Systems are important to organizations, but technological innovation through empathy enables companies to survive as well as grow. Through this, the organization will have the flexibility to realize humanity management, not just the flexibility to increase the efficiency of mechanical functions.

#### *3.3.2. ESG*

ESG management contains core values that enhance corporate sustainability by considering non-financial factors as well as financial factors from the perspectives of environment, society, and governance. The indicators of corporate management announced at the World Economic Forum (WEF) are divided into four areas: principles of governance, planet, people, and prosperity (WEF, 2020). ISO 26000 provides guidance to enterprises, whose core topics are organizational governance, human rights, labor practices, environment, fair operation practices, consumer issues, community engagement, and development (Lee, W. H., 2019).

Recently, ESG management is expanding to a ‘virtuous circle of sharing’, such as the evolution of social contribution and expansion of participation for the underprivileged. In other words, it contains the virtuous cycle for society in financial as well as non-financial performance. Humanity management achieves financial and non-financial performance with the goal of life, and this is achieved through the three managements of this model.

*3.3.3. Ecosystem Management*

The economic background of ecosystem management is based on the 'circular economy'. This includes the transition from the linear economy of the industrial age to a circular economy in which input materials are not discarded, but are repeatedly used as resources within the economy. In other words, recycling, return, repair, reuse, and remake make the circular economy possible. Ecosystem management goes beyond the company's own eco-friendly management, and is a concept shared and integrated at the local, national, and global levels (Lee, 2021). Traditional management logic for corporate profit maximization is not suitable for the global community's current pandemic and climate crisis.

Ecosystem management from the perspective of humanity management should not make the mistake of trying to take a self-centered approach when companies try to convert to a circular business model. Internally, a company tends to overestimate internal resources, capabilities, needs, and wishes. On the other hand, externally, the company faces the error of underestimating the resources, capabilities, and needs of partners in the ecosystem. This is due to the failure to cooperate with external partners and to change and innovate the appropriate corporate system that was not included in the traditional business value chain (Frishammar & Parida, 2021). Ecosystem management is a proposition that must be realized through humanity management.

*3.3.4. Human Rights*

Issues in human rights related management are mainly regulated by law, and corporate human rights violations have been prohibited by law. However, in recent years, so-called "power trip" human rights violations have become a serious social issue. The United Nations (UN) human rights council sanctioned the existence of a corporate responsibility to respect human rights by unanimously "welcoming" the "protect, respect and remedy" framework for business and human rights (Felice, 2015). Due diligence is at the heart of the United Nations guiding principles on business and human rights, which establish the main parameters internationally for considering corporate responsibility for human rights violations (Bonnitcha & McCorquodale, 2017). Now, human rights management should be more actively implemented in corporate sustainability, away from just the legal sense. Therefore, human rights management is an essential factor for sustainable growth and effective risk management (Lee, S. C., 2019). It is an important strategy in the implementation of humanity management, and a voluntary activity for long-term sustainability and development in social aspects. It should not be approached as a means of publicity contributing to a camouflage attitude (Kim, 2014). Therefore, human rights management has a limit to CSR access (Nieuwenkamp, 2016).

When it comes to human rights issues, companies must have not only a preventative responsibility, but also an active strategic intent to realize human rights management. The recent paradigm shift in corporate regulation in international norms and human rights management is shifting from shareholder-centered thinking to market-oriented regulation through stakeholder-centered thinking and information disclosure (Kwak, 2015). The National Human Rights Commission (2018) in South Korea divided the human rights management manual into four stages. First, the establishment of a human rights management system; second, the evaluation of human rights impact; third, the execution and disclosure of human rights management; and fourth, the relief procedure is presented.

Human rights management in humanity management is not only viewed as a conventional socially responsible management, it reflects all dimensions of human rights in corporate activities (Kim, 2013). It should not be a passive approach according to social atmosphere or legal and institutional rules, but should be implemented in management and respect for 'humanity' and fundamental awareness of human existence.

*3.3.5. Stakeholder Capitalism*

"Capitalism is in crisis" is written in the preface of Alex Edmans' book 'Grow the Pie'. He argues that companies should grow pies as strategies that simultaneously generate social values and profits. This 'pie' is social value, not profit. When social value is the primary goal, it results in more profit than when profit-seeking is the final goal, and enables long-term sustainable investment (Edmans, 2020, 2021, 13-25)

Until now, business has been approached only as a zero-sum game. So, in order to maximize profits, they have taken methods of raising product prices or cutting wages. It was a structure in which corporate management took profits from society. Fair distribution has been discussed as corporate responsibility, but limited only to redistributing a determined share.

Stakeholder Capitalism was the topic of the 2020 Davos World Economic Forum. The 2019 Business Roundtable (BRT), America's most influential CEO gathering, redefined the purpose of a company. This new mission statement includes not only shareholders but also stakeholders (customers, employees, suppliers, communities and shareholders) (BRT, 2019). The purpose of a company's existence is to emphasize the transformation into a company that promotes society, not just profit.

*3.3.6. Resilience*

Resilience in a company is the organization's ability to predict, prepare, respond, and adapt to gradual changes and sudden disruptions in the business in order for the organization to survive and thrive. Resilience is the ability to absorb stress, restore important functions, and continue as situations change. WEF defines resilience as the ability to not only respond flexibly to crises that are difficult to predict and have large environmental impacts but also use them to transform crises (WEF, 2018).

The recovery management perspective goes beyond risk management as a methodology for returning a destroyed or lost field to its normal position. It is the transformation of the business state into a resilient organization from the perspective of the whole company and the redesign of management in terms of sustainability. Recently, as environmental shocks have appeared in an unpredictable pattern, resilience at the organizational level is recognized as a core competency (Kang & Cho, 2021). Resilience management refers to the ability of a dynamic organization to bounce forward, not just a bounce back and return to its original state from external shocks.

Resilience affects job satisfaction and organizational commitment, and it has been found to have a moderating effect in the relationship between supervisor interpersonal behaviors and job satisfaction through organizational commitment (Baek, 2018; Lim & Lee, 2013). This refers to a company's recovery capability, and important influences include spare resources, cooperative relationships, strategic flexibility, and ability to respond to technological changes (Kwon & Lee, 2017). In particular, resilience as a mediating effect of emotional intelligence and emotional labor for emotional workers has a significant meaning (Byun & Yim, 2021). Because service failures lead to customer complaints and corporate image damage (Keaveney, 1995), recovery management allows customers to solve problems flexibly at their contact with customers rather than simply solving customer complaints (Kim, 2010).

Infectious diseases have already been reported as a serious threat to mankind for the next 10 years (WEF, 2022). Business activities after the pandemic should be based on restoring life. For the recovery of humans and the environment, business activities are founded on the realization of hygiene, safety, and health. Resilience is about how recharging, not endurance (Achor & Gielan, 2016). Resilience business converges with life, the core value of humanity management.

*3.3.7. Personal Information Protection*

Personal information protection in a hyper-connected society should not be compromised because of the convenience, efficiency, and safety

of digitalization. In this regard, in terms of the human right to pursue happiness, companies must conduct detailed management activities. According to the Fifth Amendment to the United States Constitution, a person's life, liberty, and property rights are fundamental and inherent rights of an individual. This right is the right to life or the right to lead a life, and the right to be alone and the right to privacy must be guaranteed (Lee & Cho, 2019). The meaning of personal information to individuals is the right to the self-determination of personal information, which means personal rights and property rights. To public institutions such as the government, personal information means information as a socially operated asset and a core element of society, and to the private sector such as a company, personal information means information as an opportunity for business assets and profit creation.

The WEF considers cybersecurity failure a serious threat to the global society within the next five years (WEF, 2022). The EU General Data Protection Regulation (GDPR, n.d.) sets out seven principles for the processing of personal data. These include the (i) principle of legality, fairness, and transparency, (ii) principle of purpose limitation, (iii) principle of minimization of personal information processing, (iv) principle of accuracy, (v) principle of retention period, (vi) principle of integrity and confidentiality, and the (vii) principle of accountability. In the digital era, personal information protection is directly related to respect for life in humanity management.

*3.3.8. Design Thinking*

Design thinking enables businesses to understand and gain insight into the complex connections between people, places, events, and ideas in business. Design thinking allows business decisions based on future opportunities rather than past events. It stimulates the imagination and reveals its true value (Mootee, 2013, 2019). It combines and applies technologies such as design, engineering, economics, humanities, and social sciences to solve corporate problems. Therefore, it is useful for identifying and defining business challenges such as strategic planning, product development, innovation, and corporate social responsibility. It is a framework of people-centered approaches to strategic innovation and a new management paradigm for creating value in a world of radically changing networks and disruptive technologies (Mootee, 2013, 2019). The essence of design thinking is its cultural dimension, which is characterized by human-centeredness, speed and agility, adaptability and flexibility, inspiration, subversiveness, passion, and purpose realization.

Design Thinking provides a balance that focuses on form, relationship, behavior, and real human interactions and emotions in a digital transformation driven by big data. It allows the customer experience to be realized in the era of digital transformation (Kim, 2020; Liedka and Ogilvie, 2011, 2016). Within a company's organization, it helps build closer relationships, including employees and all other stakeholders in the supply chain network, eliminating complexity and clutter, and helping people return to basic human needs and human problems. Data cannot replace intimacy (Martin, 2009, 2020). Design thinking always focuses on the needs of the customer or end user. This need includes customer information that is not identified, met, or unknown through data (Mootee, 2013, 2019). Design thinking realizes humanity management in the age of data-driven technology to discover hidden needs. It is an alternative to overcoming the failure of data-oriented scientific management, which makes it more approachable to the nature of human-oriented management.

*3.3.9. Digital Transformation*

Digital transformation is a process that fundamentally changes a company's strategy, organization, process, business model, organizational culture, communication, and systems through various changes that occur due to digital innovation, such as big data, artificial intelligence, the Internet of Things, blockchain, and platforms. It is understood as a management strategy (Lee, W. H., 2019). It is a representative

phenomenon of today's business transformation. Digital transformation is also about people, not technology. The key is to apply technology to human life and business.

Digital transformation focuses on the use of technology to further develop and deepen relationships with customers from a humanity management perspective. Therefore, digitalization should be built from the perspective of 'life', the core value of humanity management, from the perspective of function and technology.

## IV. Conclusion

Recently, new management issues such as ESG, social value management, and digital transformation have been approached as means of individual strategies. However, it is unclear what in what direction these issues should be directed.

This study presented the theory and model of humanity management as new corporate management in today's era where humans, machines, and environments coexist with the research question of "what should management theory be in the new trend of the times?"

The research method of this study focused on theoretical research through literature research. In addition to previous studies on humanity management, studies on limitations revealed in scientific data-oriented management were included. The central concept discovered in the previous research is toward "humanity" such as life, community, social responsibility, connections between people, empathy, sensibility, emotion, resilience, agility, good for business and profit, respect for human and nature, ethics about nature and machinery, trust, and interactions between technology and people.

The theoretical model of humanity management consists of three levels. The first is the 'mission level', which is the center of this model, and its core value is 'life'. Life is the goal of management in this model, and the source of feedback that should be checked. This is a core value that is central to the application of machines and nature, as well as from the point of view of human existence. The essence of life is survival and persistence. Life also includes relationships. Therefore, the attribute of life is love. The relationship of life is evidenced by love. The meaning of love in management means respect for people, animals and plants, nature, and management activities. When a company produces a product, it sets its most basic value to have a good influence on nature as well as those who use it.

The second is the 'management level'. At this level, ethical management, environmental management, and technological management are organically connected and integrated. This management level is fundamentally based on technological innovation. Digital technological innovation caused by the 4th industrial revolution is the basis for explaining today's society. This is because technological innovation is already recognized as a new economic order beyond its technological significance. Therefore, technological innovation is the core of the business model in management. These three should be able to provide solutions to key issues (AI ethics, climate crisis, achievement of net zero) in an organically connected and integrated dimension, and ultimately converge to the mission level, life, and provide feedback as well. In addition, this management level is a step toward enabling the implementation strategy of this model.

The third is the 'implementation level'. This implementation strategy is derived from the mission level and management level. It consists of nine implementation strategies: (1) agile culture and organization, (2) ESG management, (3) ecosystem management, (4) human rights, (5) stakeholder capitalism, (6) resilience, (7) personal information protection, (8) design thinking, and (9) digital transformation. In the implementation strategy, the three managements are not only organically connected, these implementations are also reviewed and reexamined in the life dimension of the 'mission level'.

This study is meaningful in that it attempted to theoretically establish humanity management as a new management paradigm. However, there is a limitation in that many variables were not considered in constructing the theory due to

the lack of empirical studies as well as previous literature studies. Nevertheless, it is expected that this study will serve as a starting point and many follow-up studies on the new management paradigm of the new era will be made.

## References


Aaker, D. A. (1995). *Developing business strategies* (4th ed.). Wiley.

Achor, S., & Gielan, M. (2016, June 24). Resilience is about how you recharge, not how you endure. *HBR.* https://hbr.org/2016/06/resilience-is-about-how-you-recharge-not-how-you-endure

Baek, Y. S. (2018). The structural relationships among resilience, organizational commitment and organizational trust. *Korean Journal of Business Administration*, *31*(8), 1573-1587. https://doi.org/10.18032/kaaba.2018.31.8.1573

Bonnitcha, J., & McCorquodale, R. (2017). The concept of 'due diligence' in the UN guiding principles on business and human rights. *The European Journal of International Law*, *28*(3), 899-919. https://doi.org/10.1093/ejil/chx042

BRT. (2019). *Business roundtable redefines the purpose of a corporaion to promote an economy that serves all americans.* https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans

Byeon, H. S., & Yim, M. S. (2021). Mediating effect of resilience on the relationship between emotional intelligence and emotional labor. *Logos Management Review*, *19*(2), 97-114. https://doi.org/10.22724/LMR.2021.19.2.97

Cash, P., & Trezona, J. (2021). *Humanizing B2B: The new truth in marketing that will transform your brand and your sales.* Practical Inspiration Publishing.

Camillus, J. C. (2009). Good business in bad times: The strategic advantages of humanity in business decisions. *Effective Executive*, *August*, 29-34.

Camillus, J. C., Bidanda, B., & Mohan, C. (2017). *The business of humanity*. Routledge.

CAP Gemini Consulting and MIT Sloan. (2012). *The digital advantage: How digital leaders outperform their peers in every industry*. https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans

Edmans, A. (2021), *ESG pieconomics* (J. H. Song, Trans.), Maeil Business Newspaper (Original Work Published 2020), 13-25.

Ermakova, T., Blume, J., Fabian, B., Fomenko, E., Berlin, M., & Hauswirth, M. (2021). *Beyond the hype: Why do data-driven projects fail?.* ResearchGate. https://www.researchgate.net/publication/346647451_Beyond_the_Hype_Why_Do_Data-Driven_Projects_Fail

Felice, D. D. (2015). Business and human rights indicators to measure the corporate responsibility to respect: Challenges and opportunities. *Human Rights Quarterly; Johns Hopkins University Press, 37*(2), 511-555. https://doi.org/10.1353/hrq.2015.0031

Frishammar, J., & Parida, V. (2021). The four fatal mistakes holding back circular business models: Manufacturing companies must avoid key missteps as they shift to more environmentally sustainable approaches. *MIT Sloan Management Review*, Spring. https://sloanreview.mit.edu/article/the-four-fatal-mistakes-holding-back-circular-business-models/

GDPR. (n.d.). *What is GDPR, the EU's new data protection law?*. https://gdpr.eu/what-is-gdpr/

Gil, C. (2021). *The end of marketing: Humanizing your brand in the age of social media*. Kogan Page, 9-18.

Joshi, M. P., Su, N., Austin, R. D., & Sundaram, A. K. (2021). Why so many data science projects fail to deliver. *MIT Sloan Management Review; MIT's Journal of Management Research and Ideas, 62*(3), 85-89. https://sloanreview.mit.edu/article/why-so-many-data-science-projects-fail-to-deliver/

Kang, Y. S., & Cho, B. Y. (2021). Effects of knowledge management activities on financial performance: Focusing on the mediating effects of enterprise-level resilience. *Knowledge Management Research*, *22*(1), 139-154. https://doi.org/10.15813/kmr.2021.22.1.008

Kaplan, R. S., & Norton, D. O. (1996). Using the balanced scorecard as a strategic management system. *Harvard Business Review*, *74*(1), 75-85.

Keaveney, S. M. (1995). Customer switching behavior in service industries. *Journal of Marketing*, *59*(2), 71-82. https://doi.org/10.2307/1252074

Kim, B. J. (2013). Reinforcement in human rights management through corporate human rights reporting indicators: Focusing on human rights indicators in ISO 26000 and GRI G4. *Ajou Legal Research, 7*(1), 37-69. https://doi.org/10.21589/ajlaw.2013.7.1.37

Kim, H. G. (2010). A study on the effects of the customer's trust after service failure and recovery efforts. *Logos Management Review*, *8*(1), 147-174.

Kim, I. J. (2014). International standards and legal tasks on business and human rights. *Justice*, *140*, 5-45.

Kim, Y. S. (2003). Theological reflection on concept and nature of life. *Korean Journal of Christian Studies*, *30*, 237-262.

Kim, Y. S. (2020). *Service design thinking for digital transformation.* Life and Power Press, 22-38.

Klassen, R. D., & McLaughlin, C. P. (1996). The impact of environmental management on firm performance. *Management Science*, *42*(8), 1199-1214. https://www.jstor.org/stable/2634452

Korhonen, J. J., & Halen, M. (2017, July 24-27). Enterprise architecture for digital transformation. *2017 IEEE 19th Conference on Business Information.* Thessaloniki, Greece, 349-358. https://doi.org/10.1109/CBI.2017.45

Kotler, P., Kartajaya, H., & Setiawan, I. (2021). *Market 5.0: Technology for humanity*. Gilbut.

Kwak, K. H. (2015). The legal implications of business and human rights and paradigm shift on regulation for corporation. *Journal of Corporate Law*, *29*(1), 205-228.

Kwon, J. D., & Lee, J. C. (2017). A study on determinants of resilience of firms. *Journal of Decision Science*, *25*(2), 1-24.

Leadbeater, C. (2014). *The London recipe: How systems and empathy make the city.* Centre for London. http://www.centreforlondon.org/publication/london-recipe

Lee, S. C. (2019, March 28-29), Trends in human rights management policy at domestic and abroad. *Human Rights Management Forum, National Human Rights Commission of Korea*, Seoul, Korea, 5-20.

Lee, W. H. (2019). *Digital business transformation.* Kyomoonsa, 126-129.

Lee, W. H. (2021). A study on the integrated cooperative model of ecosystem management in the pandemic era. *Logos Management Review*, *19*(2), 135-156. https://doi.org/10.22724/LMR.2021.19.2.136

Lee, W. H., & Cho, S. Y. (2019). *Hyper connected society & personal data protection.* Amormundi, 25-62.

Leonhard, G. (2016). *Technology vs Humanity: The coming clash between man and machine*. Fast Future. 111-132.

Liedka, J., & Ogilvie, T. (2016). *Designing for growth: A design thinking tool kit for managers* (H. S. Kim & H. C. Bong, Trans.). Greenrainbook (Original Work Published 2011), 13-28.

Lim, C. H., & Lee, H. S. (2013). A study on the influence of abusive supervision of supervisors on organizational effectiveness. *The Korean Journal of Human Resource Development Quarterly*, *15*(3), 85-115. https://doi.org/10.18211/kjhrdq.2013.15.3.004

Liu, Y, Han, H., & DeBello, J. (2018, January 3). The challenges of business analytics: Successes and failures. *Proceedings of the 51th Hawaii International Conference on System Sciences 2018.* https://pdfs.semanticscholar.org/ca40/41f863bdc5080ad519a7ad05c70b360287fa.pdf?_ga=2.192246063.489270893.1653126680-1213814274.1653126680

Martin, R. (2020). *The design of business*, (H. Y. Han, Trans.). Ux Review (Original Work Published 2009), 23-34.

Mootee, I. (2019). *Design thinking for strategic innovation* (H. Y. Han, Trans.). Ux Review (Original Work Published 2013), 41.

National Human Rights Commission of Korea. (2018). *Human rights management manual of public institutions.* 1-229. https://www.humanrights.go.kr/site/main/index002

Nieuwenkamp, R. (2016, January 22). *2016: CSR is dead! What's next?.* Friendsoftheoecdguidelines. https://friendsoftheoecdguidelines.wordpress.com/2016/01/22/2016-csr-is-dead-whats-next/

Osburg, T., & Lohrmann, C. (2017). *Sustainability in a digital world: New opportunities through new technologies.* Springer International Publishing, 3-8.

Perkin, N., & Abraham, P. (2017). *Building the agile business through digital transformation*. Kogan Page, 167-169.

Taylor, P. W. (2020). *Respect for Nature* (Y. Kin, Trans.). Risu (Original Work Published 2011), 15-65.

WEF. (2018). *The global risks report 2018* (13th ed.). https://www3.weforum.org/docs/WEF_GRR18_Report.pdf

WEF. (2020). *Measuring stakeholder capitalism: Towards common metrics and consistent reporting of sustainable value creation.* https://www3.weforum.org/docs/WEF_IBC_Measuring_Stakeholder_Capitalism_Report_2020.pdf

WEF. (2022). *The global risks report 2022.* https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf

Wilson, D. (2005). A tale of two projects: Why IT projects fail. *AJIS*, *12*(2), 134-146. https://journal.acs.org.au/index.php/ajis/article/view/87/68

Yamamoto, J., & Ananou, S. (2015). Humanity in the digital age: Cognitive, social, emotional, and ethical implications. *Contemporary Educational Technology*, *6*(1), 1-18. https://sloanreview.mit.edu/article/why-so-many-data-science-projects-fail-to-deliver/

Yip, G. S. (1995). *Total global strategy: Managing for worldwide competitive advantage.* Prentice Hall.

ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.91

The Journal of Global Business and Trade

Journal of Global Business and Trade

https://www.pfw.edu/jgbt

# A Study on Government Commitment, Public Capital, and Trade

**Yang-Seung Lee**[a]

[a]*Department of International Trade, Kunsan National University, South Korea*

*Received 19 May 2022, Revised 17 July 2022, Accepted 8 August 2022*

**ABSTRACT**

**Purpose –** Political populism can leave a negative impact upon social welfare with weakening commitment credibility. It is widely known that public policy plays a role in determining trade gains. The purpose of this paper is to examine how political populism affects the social welfare of an open economy.

**Design/Methodology/Approach –** This paper extends the Brander-Spencer model in which home and foreign firms compete in oligopoly in a third country. In that model, social welfare is defined as the sum of home firm profits. Strategically, home and foreign firms schedule output to maximize firm profits. Firms can make investments privately to reduce the marginal cost. This paper supposes that a government invests in public capital to inspire private investments. The public investment of the home government benefits the home firms.

**Findings –** The project of public capital investment takes time until completion. That is, it will be completed in the future. Thus, commitment credibility matters. Specifically, politicians have incentives to reschedule the on-going project of public capital investment in their best political interest. This is the main reason why many public projects encounter hold-up problems. Political populism lies at the center of the problems.

**Research Implications –** This paper emphasizes that commitment credibility is important as along with the size of the public project. Although the size of a public project is large, the private sector does not respond to the commitment if it lacks credibility. Thus, policymakers should keep in mind that commitment credibility is a necessary condition for the success of a public project.

***Keywords:*** asymmetric information, dynamic inconsistency, international trade, oligopoly, strategic trade policy

***JEL Classifications:*** C72, D82, F12, H54, L13

[a] *E-mail: yslee1992@kunsan.ac.kr*

## I. Introduction

Public capital plays an important role in an economy. In most cases, a government commits to invest in public capital, and the private sector responds to the commitment. That is, firms set investment schedules. Thus, the commitment itself can generate economic effects. Suppose that the private sector does not trust the government commitment. Then, the government cannot expect its public plan to generate economic effects. This is why government commitment should be credible. It happens that governments cancel commitments. In this case, firm investments become ineffective. Furthermore, the problem of dynamic inconsistency can arise. Political populism is at center of all those problems. This paper presents an oligopoly model to show how commitment incredibility impacts the social welfare of an open economy. Brander and Spencer (1985) provided a workhorse model for public policy and its impact on social welfare. In their model, public policy plays a role of shifting profits from foreign firms to home firms. This paper argues that the credibility of public policy is the sufficient condition for a profit-shifting role in their model. For example, if the public policy lacks credibility, the home firms would not increase their output schedules. Using their framework, this paper shows that commitment incredibility can lower social welfare.

In the context, this paper can link to the literature of public policy and innovation. Among all, D'Aspremont and Jacquemin (1987) and Haaland and Kind (2008) can be selected. The articles analyzed how public financial support (subsidy) could inspire private firm investments for innovation, where home and foreign firms compete in oligopoly in a third country. Public financial support can help home firms innovate at a lower cost. As the result, profits shifts from foreign firms to home firms. However, financial support can cause political quarrels because the government favors some firms directly using public money. Moreover, the World Trade Organization prohibits all public financial support in principle. Meanwhile, public capital investment is free from the regulation and can play a similar role of profit-shifting. However, public capital investment favors firms indirectly. Commitment credibility does not matter for public financial support because there is no time lag for the execution of the policy. In contrast, commitment credibility matters for public capital investment because there exists a time lag. Public capital can be regarded as a production input. That is, public capital can help private firms reduce the marginal cost. Neary (2002) developed an oligopoly model in which firm investment sharpens competency through reducing marginal cost. In extension, this paper shows how public capital investment increases firm investments for the reduction of marginal cost. The marginal cost reduction sharpens the competency of home firms more, and eventually, home firms outperform foreign firms. As the result, profits shift more from foreign firms to home firms. Marginal cost reduction can be interpreted as productivity improvement[1].

There are empirical studies for the impact of public capital investment on productivity. In the seminal works, Aschauer (1989a, 1989b) incorporated public capital into a production function and estimated that the elasticity of output with respect to public capital was between 0.34 and 0.39. He explained that, during 1970s in the US, productivity decline stemmed from public capital decline. According to Munnell (1992), an increase of 1 percent of public capital increased output by .34 percent. Implicatively, the marginal productivity of public capital is roughly 60 percent. Pereira and Andraz (2013) surveyed empirical studies and covered cases globally. Neary emphasized strategic actions of firms and found a subgame perfect Nash equilibrium. This paper emphasizes that the commitment of public

1. Lee (2020, 2021) showed how the improvement of firm productivity can affect firm size distribution. He incorporated changes of firm productivity into a general equilibrium. Gao and Jin (2022) explained how financial technology affects enterprise innovation. Enterprise innovation can affect firm size distribution.

capital investment induces home and foreign firms to respond strategically. In process, credibility is pivotal. Commitment incredibility can arise from political populism. Not surprisingly, politicians have more concern about political power rather than economic efficiency. Thus, populism can generate incredible commitment to public policies. In this paper, populism arises from hidden information of the government. That is, a project of public capital investment entails political intent. However, the intent is not reported truthfully. Most preceding studies considered private information of firms. This paper focuses on private information of the government: political intent. Firms never know the true intent when the government commits to a project of public capital investment. In absence of private information, the government object function equals the social welfare function. In presence of private information, the government object function diverges from the social welfare function. Only the government knows the divergence. In this case, interaction between the government and firms takes the form of strategic information transmission. The remainder of this paper is structured as follows. Section 2 outlines the model and finds solutions that maximize social welfare. Section 3 incorporates public capital investment into the basic model and shows how social welfare can be improved. Section 4 analyses the case of hidden information and explains how hidden information affects the solutions of Section 3. Section 5 considers dynamic inconsistency. The section analyses how commitment incredibility can affect industry outcome and social welfare. Section 6 provides concluding remarks.

## II. Model

For analysis, the Brander-Spencer model is revisited. Within the framework, home and foreign firms compete to export to a third country, and social welfare is defined as the sum of home firm profits. Either government can intervene to shift profits from foreign firms to home firms in the third country.[2] That is, the total profit of home firms increases, along with social welfare. Neary (2002, 2003, 2010) incorporated strategic investment into a Cournot model. Firms can reduce the marginal cost through strategic investment. This paper addresses that public capital can help home firms to reduce the marginal cost further. Thus, public capital investment is embedded into the Neary model, where firms strategically invest for marginal cost reduction under oligopoly. The role of public capital will be discussed in the following section. This section concentrates on a two-stage competition across firms. In the first stage, firms make decisions as to their own investments. In the second stage, they produce outputs in a Cournot manner. There are $N$ firms. Let $q_I$ denote the output of firm $i$. Then, the industry output is $Q = \sum_{i=1}^{N} q_i$. Suppose linear demand such that $P = a - Q$, where $a$ is a demand parameter. As introduced, this paper considers that the government has private information, while firms do not. The informational problem will be analyzed in a later section. This section covers the case of complete information. It is assumed that all firms have the same marginal cost $c$. In the Neary model, private investment is considered to incur up-front quadratic costs of $\frac{\gamma x^2}{2}$. The return from private investment comes as marginal cost reduction such as $c = c_0 - \theta x$, where $\theta$ is a parameter. All firms use the same technology and face the same parameters of $\gamma$ and $\theta$. In that paper, the marginal cost differs initially across firms, and the marginal cost of firm $i$ is $c_i = c_{i0} - \theta x_i$. In this paper, the parameter $\theta$ differs between countries. Let subscript $h$ represents home country, and $f$ is the foreign country. Then, the industry output is $Q = \sum_{i=1}^{N_h} q_{hi} + \sum_{i=1}^{N_f} q_{fi}$ Focusing on strategic interaction, this paper assumes that $c_{i0} = c_{(-i)o} = c$.

2. Commonly, the unilateral intervention becomes bilateral intervention because it causes a retaliation from the other government. However, this paper does not consider bilateral intervention because it does not change the result qualitatively.

There are two periods, where $\rho$ is a discount factor. Firms invest $x$ privately in Period 1, and its return comes in Period 2. Firms produce outputs every period. Let subscript $j$ denote country: $j = h$ or $j = f$. Then, in country $j$, the profit of firm $i$ can be obtained as

$$\pi_{ji}(q_{ji}, x_{ji}) = \left[(a - Q - c)q_{ji} - \frac{\gamma x_{ji}^2}{2}\right] + \rho(a - Q - c + \theta_j x_{ji})q_{ji} \quad (1)$$

In the country, private investment incurs the cost $\frac{\gamma x_{ji}^2}{2}$. Thus, the cost should be subtracted from the profit of Period 1. In Period 2, the marginal cost is reduced in proportion with the private investment. Thus, $\theta_j x_{ji}$ is added to the profit of Period 2. Firm profit is sum of the two periodic profits. By backward induction, a subgame perfect Nash equilibrium can be found.

With respect to $x_{ji}$, the first order condition is

$$\frac{d\pi_{ji}(q_{ji}, x_{ji})}{dx_{ji}} = -\gamma x_{ji} + \rho\theta_j q_{ji} = 0 \quad (2)$$

Then, the optimal investment is found as

$$x_{ji}^* = \left(\frac{\rho\theta_j}{\gamma}\right) q_{ji} \quad (3)$$

Plugging $x_{ji}^*$ into Function (1) yields

$$\pi_{ji}(q_{ji}, q_{j(-i)}) = \left[(a - Q - c)q_{ji} - \frac{\gamma\left[\frac{\rho\theta_j q_{ji}}{\gamma}\right]^2}{2}\right] + \rho\left(a - Q - c + \theta_j\left[\frac{\rho\theta_j q_{ji}}{\gamma}\right]\right) q_{ji} \quad (4)$$

Assume that the firms are symmetrical within each country. Then, the industry output is simplified as $Q = N(q_h + q_f)$. Without loss of generality, and $\rho$ can be 1. Then, (4) can be simplified as

$$\pi_h(q_h, q_f) = 2(a - N(q_h + q_f) - c)q_h + \frac{\theta_h^2 q_h^2}{2\gamma} \quad (5)$$

$$\pi_f(q_h, q_f) = 2(a - N(q_h + q_f) - c)q_f + \frac{\theta_f^2 q_f^2}{2\gamma} \quad (6)$$

For a home firm, the first order condition is

$$\frac{d\pi_h}{dq_h} = 2(a - Nq_f - c) - 4Nq_h + \frac{\theta_h^2 q_h}{\gamma} = 0 \quad (7)$$

For a foreign firm, the first order condition is

$$\frac{d\pi_f}{dq_f} = 2(a - Nq_h - c) - 4Nq_f + \frac{\theta_f^2 q_f}{\gamma} = 0 \quad (8)$$

Then, the Nash equilibrium outputs are

$$q_h^* = \frac{2\left(2N - \frac{\theta_f^2}{\gamma}\right)(a - c)}{\left(12N^2 - 4N\left(\frac{\theta_h^2}{\gamma} + \frac{\theta_f^2}{\gamma}\right) + \frac{\theta_h^2\theta_f^2}{\gamma^2}\right)} \text{ and}$$

$$q_f^* = \frac{2\left(2N - \frac{\theta_h^2}{\gamma}\right)(a - c)}{\left(12N^2 - 4N\left(\frac{\theta_h^2}{\gamma} + \frac{\theta_f^2}{\gamma}\right) + \frac{\theta_h^2\theta_f^2}{\gamma^2}\right)} \quad (9)$$

for home firms and foreign firms, respectively. The industry output is

$$Q = N(q_h^* + q_f^*) = \frac{2N(a - c)\left(4N - \left(\frac{\theta_h^2}{\gamma} + \frac{\theta_f^2}{\gamma}\right)\right)}{\left(12N^2 - 4N\left(\frac{\theta_h^2}{\gamma} + \frac{\theta_f^2}{\gamma}\right) + \frac{\theta_h^2\theta_f^2}{\gamma^2}\right)} \quad (10)$$

Then, firm profits are

$$\pi_h(q_h^*, q_f^*) = \frac{2(a-c)^2\left(4N-\frac{\theta_h^2}{\gamma}\right)\left(2N-\frac{\theta_f^2}{\gamma}\right)^2}{\left(12N^2-4N\left(\frac{\theta_h^2}{\gamma}+\frac{\theta_f^2}{\gamma}\right)+\frac{\theta_h^2\theta_f^2}{\gamma}\right)^2} \text{ and}$$

$$\pi_f(q_h^*, q_f^*) = \frac{2(a-c)^2\left(4N-\frac{\theta_f^2}{\gamma}\right)\left(2N-\frac{\theta_h^2}{\gamma}\right)^2}{\left(12N^2-4N\left(\frac{\theta_h^2}{\gamma}+\frac{\theta_f^2}{\gamma}\right)+\frac{\theta_h^2\theta_f^2}{\gamma}\right)^2} \quad (11)$$

for home firms and foreign firms, respectively.

When $\theta$ is identical between two countries ($\theta_h = \theta_f = \theta$), the outputs are symmetrical for both home and foreign firms as

$$q_h^* = \frac{2(a-c)}{\left(6N-\frac{\theta^2}{\gamma}\right)} = q_f^* \quad (12)$$

Then, the industry output becomes

$$Q = N(q_h^* + q_f^*) = \frac{4N(a-c)}{\left(6N-\frac{\theta^2}{\gamma}\right)} \quad (13)$$

Then, the profits of home and foreign firm are symmetrical as below.

$$\pi_h(\theta) = \frac{2(a-c)^2\left(4N-\frac{\theta^2}{\gamma}\right)}{\left(6N-\frac{\theta^2}{\gamma}\right)^2} = \pi_f(\theta) \quad (14)$$

## III. Public Capital Investment

In absence of public capital investment, each firm would earn profit up to $\pi(\theta)$ in (14), regardless of nationality. A government can support private investment in various ways. Financial support is common. R&D subsidy is a good example. This paper considers public capital investment that is complementary with private investment. Without public capital investment, private investment $x$ reduces the marginal cost. Thus, the marginal cost becomes $c(x) = c_0 - \theta x$ after investment. In addition, public capital investment reduces the marginal cost. Let $\phi$ denote public capital investment. Thus, the marginal cost becomes $c(x,\phi) = c_0 - \theta x - \delta\phi$ while $\delta$ is a parameter. In the presence of public capital investment, the marginal cost becomes different between home firms and foreign firms. That is, if the home government invests $\phi$ in public capital, home firms have a smaller marginal cost and an advantage over foreign firms in the third country. That is, in Period 1, the home government invests $\phi$ in public capital. In Period 2, home firms benefit from public capital. Therefore, their marginal cost should be reduced to $c_h(x_h,\phi) = c0 - \theta_h x_h - \delta\phi$. Then, profits are shifted further from foreign firms to home firms.

Home firm profit is obtained as

$$\pi_h(q_h, x_h) = \left[(a - Q - c_0)q_h - \frac{\gamma x_h^2}{2}\right] + (a - Q - c_0 + \delta\phi + \theta_h x_h)q_h \quad (15)$$

Foreign firm profit is obtained as

$$\pi_f(q_f, x_f) = \left[(a - Q - c_0)q_f - \frac{\gamma x_f^2}{2}\right] + (a - Q - c_0 + \theta_f x_f)q_f \quad (16)$$

With respect to $xj=h,f$, the first order condition is

$$\frac{d\pi_j(q_j, x_j)}{dx_j} = -\gamma x_j + \theta_j q_j = 0 \quad (17)$$

Then, the optimal private investment is found as

$$x_j^* = \left(\frac{\theta_j}{\gamma}\right) q_j \quad (18)$$

Plugging $x_h^*$ into Function (15), home firm profit can be rewritten as

$$\pi_h(q_h, q_f) = 2(a - Q - c_0)q_h + \delta\phi - \frac{\theta_h^2 q_h^2}{2\gamma} \quad (19)$$

With respect to $q_h$, the first order condition is

$$2(a - Nq_f - c_0) + \delta\phi + \left[\frac{\theta_h^2}{\gamma} - 4N\right]q_h = 0 \quad (20)$$

Plugging $x_f^*$ into Function (16), foreign firm profit can be rewritten as

$$\pi_f(q_h, q_f) = 2(a - Q - c_0)q_f + \delta\phi - \frac{\theta_f^2 q_f^2}{2\gamma} \quad (21)$$

With respect to $q_f$, the first order condition is

$$2(a - Nq_h - c_0) + \left[\frac{\theta_f^2}{\gamma} - 4N\right]q_f = 0 \quad (22)$$

For expositional simplicity, suppose that $\theta_h = \theta_f = \theta$. Then, the Nash equilibrium outputs are

$$q_h^* = \frac{2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi\left(4N-\frac{\theta^2}{\gamma}\right)}{\left(6N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)}, \text{ and}$$

$$q_f^* = \frac{2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)-2N[\delta\phi]}{\left(6N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)} \quad (23)$$

for home firms and foreign firms, respectively.

When the home government invests $\phi$ in public capital, the home firm output increases while the foreign firm output decreases. As result, the industry output becomes

$$N(q_h^* + q_f^*) = \frac{4N(a - c_0) + \delta\phi N}{\left(6N - \frac{\theta^2}{\gamma}\right)} \quad (24)$$

Home firm profit is obtained as

$$\pi_h(q_h^*, q_f^*) = \frac{\left[2N - \frac{\theta^2}{2\gamma}\right]\left[2(a - c_0)\left(2N - \frac{\theta^2}{\gamma}\right) + \delta\phi\left(4N - \frac{\theta^2}{\gamma}\right)\right]^2}{\left[\left(6N - \frac{\theta^2}{\gamma}\right)\left(2N - \frac{\theta^2}{\gamma}\right)\right]^2} \quad (25)$$

Foreign firm profit is obtained as

$$\pi_f(q_h^*, q_f^*) = \frac{\left[2(a - c_0)\left(2N - \frac{\theta^2}{\gamma}\right)\left(2N - \frac{\theta^2}{2\gamma}\right) - \delta\phi N\left(2N\left(1 - \frac{\theta^2}{\gamma}\right) - \frac{\theta^2}{\gamma}\left(1 - \frac{\theta^2}{2\gamma}\right)\right)\right]\left[2(a - c_0)\left(2N - \frac{\theta^2}{\gamma}\right) + \delta\phi\left(4N - \frac{\theta^2}{\gamma}\right)\right]}{\left[\left(6N - \frac{\theta^2}{\gamma}\right)\left(2N - \frac{\theta^2}{\gamma}\right)\right]^2} \quad (26)$$

As explained already, public capital $\phi$ reduces marginal cost $c_h$. Therefore, the home firm profit increases. However, public capital is not free. In Brander and Spencer (1985), social welfare was defined as the sum of home firm profits. In this paper, social welfare is defined as the sum of home firm profits minus the opportunity cost of public capital. That is, the social welfare of the home country is

$$W_h(\phi) = \sum_{i=1}^{N} \pi_{hi}(q_h^*, q_f^*, \phi) - r\phi \quad (27)$$

With firm symmetry, $\sum_{i=1}^{N} \pi_{hi}(q_h^*, q_f^*, \phi) = N\pi_h(q_h^*, q_f^*, \phi)$. As mentioned already, only the government knows the intent behind the commitment when the public capital investment project is committed in Period 1. The government might aim at drawing private investments from firms. Once the level of aggregate investments increases in the economy, the government can cancel the project. The social welfare function (27) entails no private information of the government. As the government has no private information, the government object function equals the social welfare function. When the government has private information, the two functions diverge. That is, in the presence of government private information, the government objective function is

$$G_h(\phi) = \left[\sum_{i=1}^{N} \pi_{hi}(q_h^*, q_f^*, \phi)\right]^{\beta} - r\phi \quad (28)$$

$\beta$ represents government type. That is, it indicates how the government cares about firm profits. As $\beta$ is larger, the government is more biased towards firms. The social welfare function (27) represents a case in which the government holds no private information. In this case, the government's objective is to increase home firm profits. $G_h(\phi)$ is differentiated with respect to $\phi$. When $\beta \geq ½$, $G_h(\phi)$ is convex ( $(\frac{d^2 G_h(\phi)}{d\phi^2} > 0)$ ). That is, the government has incentive to increase $\phi$ for home firms as much as possible. Thus, there exists no maxima of $\phi^*$. When $\beta < ½$, $G_h(\phi)$ is concave ( $(\frac{d^2 G_h(\phi)}{d\phi^2} < 0)$ ). Thus, there exists a maxima of $\phi^*$.

In the Neary model, there was no externality. In fact, public capital investment is common in all countries. Thus, the social welfare function (28) provides a rationale for the scale of public capital investment. In that case, the optimum $\phi^*$ is contingent on $\beta$, government type. If $\beta$ is not observable, the government has informational rent. In this case, the issue of asymmetric information arises.

## IV. Asymmetric Information

As introduced, this paper considers the case that a government has private information. For example, a president and administration might be biased toward firm owners or laborers. Within this framework, $\beta$ indicates the bias. Only the government knows the true value of $\beta$. In this model, $\beta$ is assumed to follow uniform distribution. If the government wants efficient investment in public capital, it should disclose the value of $\beta$ honestly. That is, it should forfeit the information rent. The government can let firms to know own type $\beta$ using a signal. Then, interaction between the government and firms takes the form of strategic information transmission. That is, in Period 1, the government commits a scale ($\phi$) of public capital investment. Instantly, firms respond to the commitment by scheduling their private investment $x(\phi)$. The investment schedule implies the output schedule $q(x(\phi))$. In Period 2, the government fulfills the commitment $\phi$. Then, both public and private investments generate effects and reduce the marginal cost of home firms. If the government never distorts information about its type $\beta$, there exists a separating perfect Bayesian equilibrium. That is, the government signals its type $\beta$ using $\phi$, which takes the opportunity cost, and each value of $\phi$ indicates a level of $\beta$ in the separating equilibrium. By observing $\phi$, firms decide to invest $x(\phi)$ and produce $q(x(\phi))$. As result, the problem of informational asymmetry is resolved, and social welfare reaches maximum.

**Proposition 1:** In the absence of political intent, a perfect Bayesian separating equilibrium (PBSE) exists, and the equilibrium constitutes (i) strategy profile $(\phi^*, (x^*)_{i=1}^N)$ and (ii) assessment $\mu(\beta|\phi^*)$ such

i) $\forall\ \phi,\ \phi^* \in arg\ max_\phi\ U(\phi)$,
ii) $\forall\ x,\ x^* \in arg\ max_x\ \pi(x,\ \phi)$,
where $\mu(\beta|\phi^*) = 1$.

**Proof:** In Section III, the government maximizes social welfare and firms maximize the profits at the equilibrium strategy profile $(\phi^*, (x^*)_{i=1}^N)$

. In equilibrium, $\phi^*$ corresponds to $\beta$. Thus, by observing $\phi^*$, firms can update their belief toward $\beta$ using Bayes' rule. That is, $\mu(\beta|\phi^*)$, and the assessment is structurally consistent. Therefore, the pair of strategy profile and assessment constitutes a Perfect Bayesian equilibrium■

In the equilibrium, social welfare is obtained as $G_h(\phi^*) = \left[\sum_{i=1}^{N} \pi_{hi}\left(q_h^*(\phi^*), q_f^*(\phi^*)\right)\right]^{\beta} - r\phi^*$ .

One policy implication is that the government should not invert the signal $\phi$. In fact, the government has incentive to inflate the size of $\phi$ for drawing larger private investments. That is, different types of government can commit large scale public capital investment in similar manners. If firms take into account the possibility of signal inversion, they may give up updating their belief toward government type using the signal. Then, only a pooling equilibrium is available. That is, the government of a low-type can choose a large scale of $\phi$. From the perspective of firms, the signal is not informative. That is, $\phi$ does not indicate $\beta$, precisely. In this case, firms expect $\beta$ based on probability distribution. Since $\beta$ follows uniform distribution within the interval $\left[0, \frac{1}{2}\right]$, the average type is $\bar{\beta} = \frac{1}{4}$ . The implication is that firms expect the government type to be $\bar{\beta}$ regardless of a committed scale. The government knows how firms see the expectation of government type.

**Proposition 2:** The best strategy of the government is to set $\phi$ as $\bar{\phi}$ , which is consistent with the expectation of firms, $\bar{\beta}$ .

**Proof:** Suppose that $\phi^* \neq \bar{\phi}$ . If $\phi^*$ is greater than $\bar{\phi}$ , firms will set their investment and quantity in presuming $\phi^* = \phi(\bar{\beta}) = \bar{\phi}$ . Firms know that the government has incentive to inflate the scale of $\phi$. That is, although the government sets $\phi^*$ to be greater than $\bar{\phi}$ , firms respond leniently to the announcement of $\phi^*$. In this case, the public spending $r\phi^*$ is greater than $r\bar{\phi}$ ; however, it generates smaller effects on $q^*$, $x^*$, and $\pi^*$. Thus, the public investment $\phi^*$ is suboptimal. If $\phi^*$ is smaller than $\bar{\phi}$ , firms will set their investment and quantity corresponding to $\phi^*$. Firms know that the government has no incentive to deflate the scale of $\phi$. That is, firms conclude that the government has $\beta$, which is actually smaller than $\bar{\beta}$ . Thus, although the public spending $r\phi^*$ is smaller than $r\bar{\phi}$ , there exists room for social welfare to improve. Thus, the public investment $\phi^*$ is suboptimal. Therefore, the best strategy of the government is to set $\phi$ as $\bar{\phi} = \phi(\bar{\beta})$■

In consistence with $\bar{\beta} = \frac{1}{4}$ , the government sets the scale of public investment as $\bar{\phi} = \phi(\bar{\beta})$ . Given $\bar{\phi}$ , the best strategy of home firms is to schedule output as

$$q_h^{**}(\bar{\phi}) = \frac{2(a-c_0)\left(2N - \frac{\theta^2}{\gamma}\right) + \delta\bar{\phi}\left(4N - \frac{\theta^2}{\gamma}\right)}{\left(6N - \frac{\theta^2}{\gamma}\right)\left(2N - \frac{\theta^2}{\gamma}\right)} \tag{29}$$

Optimally, home firms schedule private investment as

$$x_h^{**}(\bar{\phi}) = \left(\frac{\theta}{\gamma}\right) q_h^{**} = \left(\frac{\theta}{\gamma}\right)\left[\frac{2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\bar{\phi}\left(4N-\frac{\theta^2}{\gamma}\right)}{\left(6N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)}\right] \tag{30}$$

Then, home firm profit is as below.

$$\pi_h\left(q_h^{**}(\bar{\phi}), q_f^{**}(\bar{\phi})\right) = \frac{\left[2N - \frac{\theta^2}{2\gamma}\right]\left[2(a-c_0)\left(2N - \frac{\theta^2}{\gamma}\right) + \delta\bar{\phi}\left(4N - \frac{\theta^2}{\gamma}\right)\right]^2}{\left[\left(6N - \frac{\theta^2}{\gamma}\right)\left(2N - \frac{\theta^2}{\gamma}\right)\right]^2} \tag{31}$$

Therefore, social welfare is obtained as

$$\begin{aligned} G_h(\bar{\phi}) &= \left[\sum_{i=1}^{N} \pi_{hi}\left(q_1^{**}(\bar{\phi}), q_2^{**}(\bar{\phi})\right)\right]^{\beta} - r\bar{\phi} \\ &= \left[\frac{N\left[2N - \frac{\theta^2}{2\gamma}\right]\left[2(a-c_0)\left(2N - \frac{\theta^2}{\gamma}\right) + \delta\bar{\phi}\left(4N - \frac{\theta^2}{\gamma}\right)\right]^2}{\left[\left(6N - \frac{\theta^2}{\gamma}\right)\left(2N - \frac{\theta^2}{\gamma}\right)\right]^2}\right]^{\beta} - r\bar{\phi} \end{aligned} \tag{32}$$

**Proposition 3:** When signal inversion is possible, there exists only a perfect Bayesian pooling equilibrium (PBPE), and the equilibrium constitutes (i) strategy profile $(\bar{\phi}, (x^{**})_{i=1}^{I})$ and (ii) posterior belief $\mu(\beta|\bar{\phi})$ such that

i) $\forall \phi, \bar{\phi} \in arg\, max_{\phi}\, U(\phi)$,
ii) $\forall x, x^{**} \in arg\, max_{x}\, \pi(x, \phi)$,
where $\mu(\beta|\bar{\phi}) = p(\beta)$ .

There is a case such that $\beta \neq \bar{\beta}$ . Social welfare is greater in separating equilibrium than in pooling equilibrium. Once firms invest x in an irreversible manner, the government is tempted to reduce the spending on the public project. This section underlies the assumption that a committed project is never redirected. The assumption is relaxed in the following section. Then, the problem of dynamic inconsistency can arise.

## V. Dynamic Inconsistency

This section highlights the possibility that a committed project can be redirected. In a country, projects of public capital investment are supposed to generate political quarrels. When political parties play a zero-sum game, the quarrels become more serious. In Korea, when one political party designs a project, the rival party obstructs the completion of the project without second thought. The reason is simply that the sum of payoffs is zero. That is, if the project succeeds, the party gains all in popularity and power. Implicatively, the opponent party loses. Thus, the best strategy of the opponent party is to antagonize the project. When the opponent party holds office later, it can strategically redirect the project. There are many examples in Korea. Whenever an election comes, political campaigners invent schemes for drawing votes. Among these, re-evaluating on-going public projects is commonly exploited in Korea. For instance, the controversy of the Samangeum project still continues in Korea. The size of the project is the largest among all public projects in the history of Korea. However, the project has become ineffective because of redirection and the following hold-up. Koh et al. (2010) summarized the Saemangeum project controversy. In April 2007, President Roh confirmed the land use plan: 30% for farmland and 70% for industrial. Later, President Lee revised the plan: 28% for farmland and 72% for industrial. Again, President Park redirected the project. Not surprisingly, President Moon redirected the redirected project. The Samangeum project remains at beginning stage after more than 30 years. Revisions or redirections send bad signals for investors. There is another example of the Sejong City project. In Korea, capital relocation is urgent because Seoul is overpopulated. Moreover, Seoul is very close to the militarized zone (DMZ) (approximately 20 miles from Seoul). In 2003, President Roh sought to relocate the national capital from Seoul to the newly-planned city, Sejong City, in the central country. In October 2004, the Constitutional Court held back the project and ruled that the national capital must remain in Seoul. Accordingly, the relocation of only ministries and public institutions was in process. In 2008, President Lee opposed the relocation project entirely and redirected the purpose of Sejong City. President Park redirected the redirected project. As a result, most ministries and public institutions had moved to the Sejong City in 2014. However, the Blue House and National Assembly remained in Seoul. That is, the president and lawmakers work in Seoul while cabinet ministers work in Sejong, which is 2 hours from Seoul. Thus, for a meeting, cabinet ministers and deputies spend a few hours on the highway. In Korea, frequent revision or redirection of public projects embarrasses investors and weakens commitment credibility in Korea. That is, the problem of dynamic inconsistency can arise. This section analyses how dynamic consistency can affect industry outcome and social welfare. For sequential interaction, timing can be outlined. In Period 1, the government commits a scale of public capital investment. Then, with the commitment, firms schedule investment and output expecting that public capital will help the return of private investment increase in Period 2. From the perspective of the government, the goal of the project is achieved already at the time that firms decide to increase investment. Thus, the government is tempted to spend less on the project once the goal is achieved. An extreme case is that the government cancels the project itself. If interaction between the government and firms does not repeat again, the government has incentive to

cancel the project.

In Period 1, home firms optimize private investment and output corresponding to $\phi^*$. By backward induction, the optimal output is found as

$$q_h^*(\phi^*) = \frac{2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi^*\left(4N-\frac{\theta^2}{\gamma}\right)}{\left(6N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)} \quad (33)$$

Optimally, private investment is

$$x_h^*(\phi^*) = \left(\frac{\theta}{\gamma}\right) q_h^*(\phi^*) = \left(\frac{\theta}{\gamma}\right)\left[\frac{2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi^*\left(4N-\frac{\theta^2}{\gamma}\right)}{\left(6N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)}\right] \quad (34)$$

In Period 2, if the commitment is fulfilled, home firm profit is obtained as

$$\pi_h^{DC}\left(q_1^*(\phi^*), q_2^*(\phi^*)\right) = \frac{\left[2N-\frac{\theta^2}{2\gamma}\right]\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi^*\left(4N-\frac{\theta^2}{\gamma}\right)\right]^2}{\left[\left(6N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)\right]^2} \quad (35)$$

where superscript DC denotes dynamic consistency. In the case that the government cancels the entire project, there is no external effect such as $\delta\phi^*$ in Period 2. Then, home firm profit becomes smaller than (35). That is, under dynamic inconsistency, home firm profit is

$$\pi_h^{DI} = 2(a-Q-c_0)q_h(\phi^*) - \left(\frac{\theta^2}{2\gamma}\right)\left(q_h(\phi^*)\right)^2 \quad (36)$$

where superscript *DI* denotes dynamic inconsistency. Then,

$$\pi_h^{DI} = \frac{\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)^2\left(1+\frac{\theta^2}{2\gamma}\right)-\delta\phi\left(2N\left(2N-\frac{\theta^2}{\gamma}\right)-\frac{\theta^2}{2\gamma}\left(4N-\frac{\theta^2}{\gamma}\right)\right)\right]\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi\left(4N-\frac{\theta^2}{\gamma}\right)\right]}{\left(6N-\frac{\theta^2}{\gamma}\right)^2\left(2N-\frac{\theta^2}{\gamma}\right)^2} \quad (37)$$

$$\pi_h\left(q_h^*, q_f^*\right) = \frac{2(a-c_0)^2\left(4N-\frac{\theta^2}{\gamma}\right)}{\left(6N-\frac{\theta^2}{\gamma}\right)^2} = \pi_f\left(q_h^*, q_f^*\right)$$

**Proposition 4:** If

$N > \frac{\theta^2}{2\gamma}$ *and* $\phi^* < \frac{(a-c_0)}{(a-c_0-1)\delta}$, $\pi_h\left(q_h^*, q_f^*\right) > \pi_h^{DI}$.

**Proof:** See appendix.

Within this framework, private investment is contingent on public capital investment. As the project of public capital is committed, firms schedule investment and output. Later on, the government can cancel the project. Then, the cancellation damages home firm profits and social welfare. If interaction between the government and firms does not repeat, the government has greater incentive to cancel the project. However, if the interaction repeats, the government should refrain from using a discretionary policy because of the concern about Nash reversion. That is, it can happen that, from the next period on, firms never trust government commitment even though the government has strong will to fulfill the commitment. Thus, the private investment of a firm remains as $x^* = \frac{2\theta(a-c_0)}{\gamma\left(6N-\frac{\theta^2}{\gamma}\right)}$ even though the government endeavors to inspire private

investments. That is, firms punish the government via distrust. Then, the social welfare will return from $G_h^{DI}(x^*(\phi^*))$ to $G_h(x^*)$ after one-time deviation. Through commitment and fulfillment, the private investment of a firm can increase to

$$x^*(\phi^*) = \left(\frac{\theta}{\gamma}\right)\left[\frac{2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi^*\left(4N-\frac{\theta^2}{\gamma}\right)}{\left(6N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)}\right].$$

Then, the social welfare follows a stable equilibrium path through time. In that case, total discounted social welfare can be obtained over time as $\frac{G_h^{DC}(x^*(\phi^*),\phi^*)}{(1-\rho)}$. In the presence of dynamic inconsistency, firms should recount their investment schedules. That is, firms should take into account the possibility of dynamic inconsistency. Indeed, government commitment is vulnerable to renegotiation when it is suboptimal. Nonetheless, policymakers keep in mind what Kydland and Prescott (1977) addressed. That is, the level of social welfare should be larger under rule rather than discretion. If a discretional policy is implemented frequently in the history of the country, firms are reluctant to respond to government commitment. In that case, firms make efforts to collect information about politics: who leads political parties, how their interests diverge, and who could take power in the future. In other words, firms measure the likeliness that government commitment is overturned and reflect the measure into their investment schedules. That is, firms reschedule private investment and output. In this case, public capital investment leads to inefficiency in resource allocation. This decreases the social welfare.

## VI. Conclusion

This paper has examined the role of public capital and the importance of commitment credibility in an economy. The point is that there exists a time lag between the commitment and the fulfillment. When a government commits to invest in public capital, the private sector can respond immediately to the commitment by setting investment schedules. That is, the commitment itself can leave effects on the economy. Within this framework, the government and firms can diverge in interests. The government wants firms to invest more while the firms want larger profits. Thus, after observing the increase of firm investments, the government has incentives to reschedule the project of public investment. If firms knew the incentives of the government, they may not respond to the government commitment. This is the reason for the importance of commitment credibility. Political populism can weaken commitment credibility. Intuitively, weakened credibility would affect social welfare. This paper has analyzed the Brander -Spencer to show how it lowers the social welfare of an open economy. The novelty of this paper is to relate political populism with social welfare. Commitment credibility is the sufficient condition for success of public project. If the public project lacks credibility, it hardly generates effects. Regarding public project and innovation, preceding researches concentrated on public financial support. Among all, D'Aspremont and Jacquemin (1987) and Haaland and Kind (2008) can be selected. The articles showed how public financial support (R&D subsidy) could inspire private firm investments for innovation, where home and foreign firms compete oligopolistically in a third country. Public financial support can help home firms innovate at a lower cost. As the result, profits shifts from foreign firms to home firms. Therefore, the social welfare of home country improves. However, public financial support always causes political quarrels because some firms directly benefit from public money. Moreover, the World Trade Organization prohibits all public financial supports in principle. On the contrary, public capital investment is free from the regulation and can play a similar role as public financial support. Despite similarity, public capital investment still differs from public financial support. Most importantly, public capital investment requires credibility because the fulfillment lags behind the commitment. That is, commitment credibility matters for public capital investment because there exists a time lag. In other words, public capital can generate economic effects

only if the commitment is credible. In contrast, commitment credibility does not matter for public financial support because there is no time lag for the execution of the policy.

Public capital can be regarded as a production input. The reason is that public capital can help private firms reduce the marginal cost. In that context, Neary (2002) developed an oligopoly model in which firm investment sharpens competency through reducing marginal cost. Neary emphasized strategic actions of firms and found a subgame perfect Nash equilibrium. In extension, this paper has shown how public capital investment can inspire firm investments for marginal cost reduction. In process, commitment credibility is pivotal. The marginal cost reduction sharpens the competency of home firms more, and eventually, home firms outperform foreign firms. Commitment incredibility can arise from political populism. Not surprisingly, politicians have more concern about political power rather than economic efficiency. Thus, populism can generate incredible commitment to public policies. This paper put emphasis on hidden information of the government. That is, a project of public capital investment entails political intent. However, the intent is not reported truthfully. Most preceding studies considered private information of firms. This paper focuses on private information of the government: political intent. Firms never know the true intent when the government commits to a project of public capital investment. In absence of private information, the government object function equals the social welfare function. In presence of private information, the government object function diverges from the social welfare function. Only the government knows the divergence. In this case, interaction between the government and firms takes the form of strategic information transmission.

This paper points out that government commitment is incredible in Korea. In the country, political populism weakens the credibility of government commitment. Then, firms take into account political populism whenever a public project is committed. As a result, their response to the commitment would be lenient. Thus, the beneficiary effect of public capital would be smaller than the expectation. That is, commitment incredibility lowers social welfare by counteracting the beneficiary effect. This paper provides policy implications. Policymakers should keep in mind that commitment credibility is the sufficient condition for public projects to generate economic effects. Therefore, the government should certify the fulfillment of a commitment. This paper can be extended. It has found a policy implication from the Brander-Spencer model. A reciprocal-dumping model can be an alternative to find policy implications. The mission of specification remains for future researchers.

## References

Aschauer, D. A. (1989a). Is public expenditure productive. *Journal of Monetary Economics, 23*, 177-200.

Aschauer, D. A. (1989b). Does public capital crowd out private capital. *Journal of Monetary Economics, 24*, 171-188.

Brander, J. A., & Spencer, B. J. (1985). Export subsidies and international market share rivalry. *Journal of International Economics*, *18*, 83-100.

D'Aspremont, C., & Jacquemin, A. (1987). Cooperative and noncooperative R&D in duopoly with spillovers. *American Economic Review*, *78*(5), 1133-1137.

Gao, Y., & Jin, S. (2022). How does financial technology drive enterprise innovation in China?. *Journal of Global Business and Trade, 18*(1), 25-45.

Haaland, J. I., & Kind, H. J. (2008). R&D policies, trade and innovation process. *Journal of International Economics*, *74*, 170-187.

Koh, C. H., Ryu, J. S., & Khim, J. S. (2010). The saemangeum: History and controversy. *Journal of the Korean Society for Marine Environmental Engineering*, *13*(4), 327-334.

Kydland, F. E., & Prescott, E. C. (1977). Rules rather than discretion. *The Inconsistency of Optimal Plans, 85*(3), 473-492.

Lee, Y. S. (2020). Skill distribution, trade and aggregate income: A tractable general equilibrium model. *Journal of International Trade & Commerce*, *16*(4), 21-40.

Lee, Y. S. (2021). Entrepreneurs, managers, and the firm size distribution. *International Economic Journal*, *35*(3), 367-390.

Munnell, A. H. (1992). Infrastructure investment and economic growth. *Journal of Economic Perspectives*, *6*(4), 189-198.

Neary, J. P. (2002). Foreign competition and wage inequality. *Review of International Economics*, *10*, 680-693.

Neary, J. P. (2003). Globalization and market structure. *Journal of the European Economic Association*, *1*, 245-271.

Neary, J. P. (2010). Two and a half theories of trade. *The World Economy*, *33*(1), 1-19.

Pereira, A. M., & Andraz, J. N. (2013). *On the economic effects of public infrastructure investment: A survey of the international evidence* (Working Papers No. 108). Department of Economics, College of William and Mary.

# Appendices

Proposition: If $N > \frac{\theta^2}{2\gamma}$ *and* $\phi^* < \frac{(a-c_0)}{(a-c_0-1)\delta}$, $\pi_h(q_h^*, q_f^*) > \pi_h^{DI}$ .

The firm profit under dynamic inconsistency is obtained as

$$\pi_h^{DI} = \frac{\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)^2\left(1+\frac{\theta^2}{2\gamma}\right)-\delta\phi\left(2N\left(2N-\frac{\theta^2}{\gamma}\right)-\frac{\theta^2}{2\gamma}\left(4N-\frac{\theta^2}{\gamma}\right)\right)\right]\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi\left(4N-\frac{\theta^2}{\gamma}\right)\right]}{\left(6N-\frac{\theta^2}{\gamma}\right)^2\left(2N-\frac{\theta^2}{\gamma}\right)^2}.$$

Meanwhile, firm profit without government intervention is obtained as $\pi_h(q_h^*, q_f^*) = \frac{2(a-c_0)^2\left(4N-\frac{\theta^2}{\gamma}\right)}{\left(6N-\frac{\theta^2}{\gamma}\right)^2}$. .

If $\pi_h(q_h^*, q_f^*) > \pi_h^{DI}$ , it means that

$$\frac{2(a-c_0)^2\left(4N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)^2}{\left(6N-\frac{\theta^2}{\gamma}\right)^2\left(2N-\frac{\theta^2}{\gamma}\right)^2} > \frac{\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)^2\left(1+\frac{\theta^2}{2\gamma}\right)-\delta\phi\left(2N\left(2N-\frac{\theta^2}{\gamma}\right)-\frac{\theta^2}{2\gamma}\left(4N-\frac{\theta^2}{\gamma}\right)\right)\right]\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi\left(4N-\frac{\theta^2}{\gamma}\right)\right]}{\left(6N-\frac{\theta^2}{\gamma}\right)^2\left(2N-\frac{\theta^2}{\gamma}\right)^2}$$

The inequality implies that the numerator is greater on the left-hand side than the right-hand side. That is,

$$2(a-c_0)^2\left(4N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)^2 > \left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)^2\left(1+\frac{\theta^2}{2\gamma}\right)-\delta\phi\left(2N\left(2N-\frac{\theta^2}{\gamma}\right)-\frac{\theta^2}{2\gamma}\left(4N-\frac{\theta^2}{\gamma}\right)\right)\right]\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi\left(4N-\frac{\theta^2}{\gamma}\right)\right] \quad \text{(A-1)}$$

Since $N > \frac{\theta^2}{2\gamma}$, it holds that $\left(2N-\frac{\theta^2}{\gamma}\right) > 0$ and $4N-\frac{\theta^2}{\gamma} > 0$. .

Thus, the bracket $\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi\left(4N-\frac{\theta^2}{\gamma}\right)\right]$ has a positive sign. Moreover, the bracket $\left[2N\left(2N-\frac{\theta^2}{\gamma}\right)-\frac{\theta^2}{2\gamma}\left(4N-\frac{\theta^2}{\gamma}\right)\right]$ can be rewritten as $\left[4N\left(4N-\frac{\theta^2}{\gamma}\right)+\left(\frac{1}{2}\right)\left(\frac{\theta^2}{\gamma}\right)^2\right]$ , which has a positive sign. Thus, the numerator on the right-hand side has two components. One has a positive sign while another has

a negative sign. The positive component is $2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)^2\left(1+\frac{\theta^2}{2\gamma}\right)\left[2(a-c)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi\left(4N-\frac{\theta^2}{\gamma}\right)\right]$ If the numerator on the left-hand side is greater than the positive component, the inequality always holds regardless of the negative component. That is, the following inequality (A-2) implies the inequality (A-1).

$$2(a-c_0)^2\left(4N-\frac{\theta^2}{\gamma}\right)\left(2N-\frac{\theta^2}{\gamma}\right)^2 > 2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)^2\left(1+\frac{\theta^2}{2\gamma}\right)\left[2(a-c_0)\left(2N-\frac{\theta^2}{\gamma}\right)+\delta\phi\left(4N-\frac{\theta^2}{\gamma}\right)\right] \quad \text{(A-2)}$$

The inequality (A-2) can be rewritten as

$$2N(a-c_0)\left[1-\left(1+\frac{\theta^2}{2\gamma}\right)-\delta\phi\left(1+\frac{\theta^2}{2\gamma}\right)\right]-\frac{\theta^2}{2\gamma}\left[(a-c_0)-2(a-c_0)\left(1+\frac{\theta^2}{2\gamma}\right)-\delta\phi\left(1+\frac{\theta^2}{2\gamma}\right)\right]>0 \quad \text{(A-3)}$$

Since $N>\frac{\theta^2}{2\gamma}$ , if the following inequality (A-4) implies the inequality (A-3).

$$2(a-c_0)\left[1-\left(1+\frac{\theta^2}{2\gamma}\right)-\delta\phi\left(1+\frac{\theta^2}{2\gamma}\right)\right]>\frac{\theta^2}{2\gamma}\left[(a-c_0)-2(a-c_0)\left(1+\frac{\theta^2}{2\gamma}\right)-\delta\phi\left(1+\frac{\theta^2}{2\gamma}\right)\right]>0 \quad \text{(A-4)}$$

The inequality (A-5) is simplified as follows.

$$\left[(a-c_0)-(2(a-c_0)-1)\delta\phi\left(1+\frac{\theta^2}{2\gamma}\right)\right]>0 \quad . \quad \text{(A-5)}$$

When $\phi^*<\frac{(a-c_0)}{(2(a-c_0)-1)\delta\left(1+\frac{\theta^2}{2\gamma}\right)}$ , the inequality (A-5) holds. Thus, (A-4), (A-3), (A-2), and (A-1) hold. Therefore, $\pi_h(q_h^*,q_f^*)>\pi_h^{DI}$ ■

The Journal of Global Business and Trade

ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.107

Journal of Global Business and Trade

https://www.pfw.edu/jgbt

# SEM Based Study on the Influencing Factors of the Integration of China's Smart Elderly Care Industry Chain

**Chenyang Huang[a], Seokho Hong[b]***

[a]*Department of Social Welfare, Cheongju University, South Korea*
*School of Modern Service Management, Shandong Youth University of Political Science, Jinan Shandong, China*
[b]*Department of Social Welfare, Cheongju University, South Korea*

*Received 2 July 2022, Revised 22 July 2022, Accepted 6 August 2022*

**ABSTRACT**

**Purpose –** At present, the problem of old-age security is becoming more and more prominent, and smart elderly care has become a trend in social elderly care development. However, there is relatively little research on industry chain integration, and research combining "smart elderly care" and "industry chain integration" is even more absent, although the theory of industry chain integration has put forward valuable ideas. The theory of industry chain integration should be combined with smart elderly care to carry out research and analysis on different perspectives of the industry chain, so as to promote the construction of smart elderly care industry chain integration and lay the foundation for the further research of smart elderly care industry chain integration.
**Design/Methodology/Approach –** Firstly, this study's descriptive, factor, reliability, and validity analysis, as well as the establishment and verification of structural equations, were carried out for the obtained data using SPSS statistical analysis software and AMOS. Then, the descriptive analysis processes the basic information of interviewees, and the reliability and validity of the scale are tested. In this process, principal components were extracted through factor analysis to modify the model, and a path analysis of the factors and other analyses were carried out through the establishment of structural equations to obtain the final research results.
**Findings –** The results show that there are problems with the current demand patterns of the aging group, the operation of smart elderly care enterprises, the service modes of the smart elderly care industry and the elderly care service environment, which limit the integration of the smart elderly care industry chain to a certain extent.
**Research Implications –** The prior research suffers from two types of problems, mainly focusing on qualitative analysis, a lack of empirical research, no clarification of the logical relationship between various perspectives, and a lack of variables and model systems. Therefore, the value of this study is to use structural equation modeling (SEM) to construct the factors influencing the integration of the smart elderly care industry chain and carry out an empirical study on the influencing factors.

***Keywords:*** industry chain, integration, smart elderly care
***JEL Classifications:*** C10, D69, L80

* *Corresponding Author, E-mail: jamjang3@gmail.com*

## I. Introduction

As China's population continues to age, the country's economic development faces serious challenges. Currently, the report of the 19th Party Congress puts forward the principle of "putting the people first" and the goal of "accelerating the development of the aging industry". Along with China's rapid economic development, improved living conditions have led to a significant increase in the life expectancy of the Chinese population. According to the data of the seventh population census of the National Bureau of Statistics, the population aged 60 or above in China is about 260 million as of 2020, accounting for 18.7% of China's total population. The number of people aged 65 or above has increased 1.16 times from 88.21 million in 2000 to 190.64 million in 2020, and the proportion of the elderly population has increased from 6.96% in 2000 to 13.5%. With the accelerating trend of population aging, the traditional elderly care model has been unable to meet the current requirements of elderly groups, the development of the traditional home care industry has entered a "bottleneck" period, and the smart elderly care industry has been developing rapidly. The Action Plan for Promoting the High-Quality Development of the Health Industry (2019-2022), issued in 2019, states that it is necessary to accelerate the development of health industry and promote the formation of a health industry system with rich connotations and reasonable structure. The Action Plan for the Development of Intelligent Health and Aging Industry (2021-2025), issued in 2021, proposes to further promote the development of the intelligent health and aging industry, create new momentum for the development of the information technology industry, optimize the aging industry chain, and solve the problem of aging groups. In order to solve these contradictions and difficulties, it is necessary to have an intelligent products and information system platform as the carrier, optimize and integrate the elderly industry chain, and promote the sustainable development of the smart elderly care industry. In turn, companies will achieve an active response to population aging, create new momentum for the development of the information technology industry, meet the increasingly urgent health and retirement needs of the elderly, and achieve the harmonious development of society.

However, there is relatively little research on industry chain integration, and the research combining "smart elderly care" and "industry chain integration" is even more absent, although the theory of industry chain integration has put forward valuable ideas. At present, the problem of old-age security is becoming more and more prominent, and smart elderly care has become a trend in social elderly care development. The theory of industry chain integration should be combined with smart elderly care to carry out research and analysis on different perspectives of the industry chain, so as to promote the construction of smart elderly care industry chain integration and lay the foundation for further research of smart elderly care industry chain integration. However, the prior research suffers from problems: it is mainly focusing on qualitative analysis, lacking empirical research, not clarifying the logical relationship between various perspectives, and is lacking variables and model systems. Therefore, the innovation of this study is to use structural equation modeling (SEM) to construct the factors influencing the integration of a smart elderly care industry chain and carry out an empirical study about the influencing factors.

This study uses a combination of theory and empirical evidence to systematically review relevant literature, conduct a questionnaire pre-survey, and carry out formal questionnaire distribution as well as data collection and processing. This leads to the conclusion that the demand structure of the aging group, elderly service operation, smart elderly service system, and the elderly service environment are the main influencing factors, ensuring the authenticity and reliability of the data as well as the scientific and rational nature of the research conclusions. In the pre-study stage, the interview method was used to understand the needs of the elderly population, the current situation of elderly service enterprises, and government support policies in Shandong Province, China. The questionnaire

of the factors influencing the smart elderly care industry chain was designed based on the results of the interviews. Later, through questionnaires, the statistical data of factors such as the demand structure of aging groups, elderly service operation, and smart elderly care service system in Shandong Province were obtained partially for the subsequent quantitative study. Using SPSS and AMOS statistical analysis software, descriptive analysis, reliability and validity analysis, and factor analysis, structural equation building and testing were performed on the acquired data. After the descriptive analysis processed the basic information of the respondents, the reliability and validity of the scale were examined; in this process the principal components were extracted by factor analysis used to revise the model, and path analysis of the factors was performed by establishing structural equations and conducting other analyses to obtain final research results.

## II. Literature Review

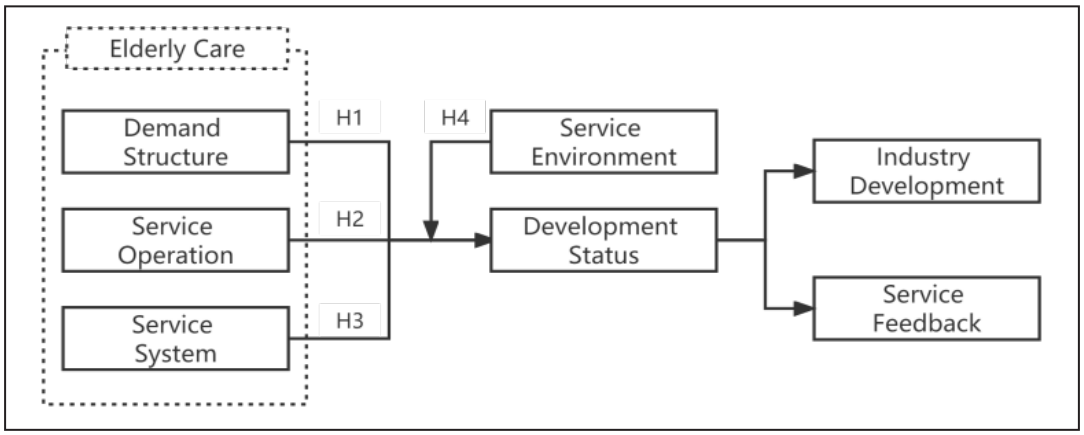
Smart Elderly Care, also known as the "Total Intelligent Aging System", was developed by the Life Trust in the UK. It refers to the breakthrough of space limitations and time lags with the help of "Internet+" technology, which enables the supply side to accurately allocate various resources in each link of the elderly care industry chain according to the characteristics of the industry and the dynamic analysis of demand, so as to achieve the maximum output. The core of the "Total Intelligent Aging System" is intelligent technology that can connect the elderly with the government, community, medical institutions, and health care professionals. While pooling medical resources to provide health care services to seniors, it can also expand the scope of socialization and support for seniors (Hussain et al., 2015). An effective supply of smart elderly care products can help cater to the needs of the elderly and improve their sense of access and well-being.

The emergence of "industrial chains" can be traced back to Adam Smith's "Wealth of Nations", published in 1776, which stated that industrial production is based on a chain of the division of labor (Rui & Liu, 2006). As a basic concept in industrial economics, the industrial chain was introduced by Hirsehman, an American development economist, in his book "Economic Development Strategy" in 1958; the vertical relationship between upstream and downstream of industrial chain was the focus of his research (Hirschman, 1958). At present, many domestic and foreign economists have elaborated upon the definition of the industrial chain from different perspectives, such as product value formation, industrial association, spatial agglomeration, and division of labor among enterprises. Therefore, the industrial chain refers to the dynamic and functional network-like chain relationship formed objectively by the interconnection and balanced development of various industrial organizations undertaking different value creation functions around the formation process of products and services.

Industry chain integration is a process of coordination and optimization based on a comprehensive and holistic analysis of all links of the entire industry chain. Industry chain integration has now become one of the most important theoretical tools for studying industrial development. The origin of the theory can be traced back to the neoclassical economist Marshall's "Principles of Economy", in which he systematically analyzed how the organization and management of enterprises can bring about the benefits of industrial chain division of labor and collaboration, arguing that such benefits "are the economy of technology, the economy of machinery and the economy of raw materials" (Marshall, 1920). Coase and Williamson, the main representatives of "transaction cost theory", emphasize how the efficient allocation of resources and industrial chain integration, whether by vertical integration or market purchase, is always concerned with saving transaction costs along the chain. The type of combination chosen between industrial organizations to achieve savings in transaction costs also leads to a diversity of types of industry chain integration approaches (Coase, 1937; Williamson, 1981). Scholars represented

by J. Bain and E. Mason proposed the famous Structure-Conduct-Performance, which mainly examined the influence of market factors such as industry barriers, market concentration, and product differentiation on firm price and output decisions, and argued that industry chain integration will enable dominant firms to achieve competitive advantage and even establish market thresholds.

**Fig. 1.** Theoretical Model of the Study of the Factors Influencing the Integration of the Smart Elderly Care Industry Chain




The changing demand structure brings new opportunities for the development of the health industry. The traditional industrial model is difficult to adapt to diversified needs. It is necessary to integrate the health industry chain with the demand structure at the center, improve the service level, promote the transformation and upgrading of the health industry, and meet growing health needs. It is necessary to promote the structural reform of health services and products on the supply side, and build an integrated model of the health industry chain (Wei et al, 2018). There is a mismatch between the supply and demand structure of the smart elderly care industry. It is necessary to strengthen the optimization and integration of the smart elderly care industry chain, realize the full docking of the supply and demand of smart elderly care, promote the structural reform on the supply side, and increase the effective supply (Liao, 2019).

**H1:** The demand structure has a positive impact on the development status of the smart elderly care industry chain integration.

The development of the smart elderly care industry must crack the problems of the lack of business models and bottlenecks in information resource sharing, innovate industrial business models, and improve the quality of service products. The industry chain should be decomposed and reorganized, and re-optimized and integrated (Liao, 2019). The smart elderly care industry needs to form a systematic, perfect, and effective business operation model to solve the survival pressure faced by enterprises, to achieve the profitability goal of the smart elderly care industry, it is necessary to integrate the upstream, midstream and downstream of the smart elderly care industry chain into three links: product manufacturing, product distribution, and product consumption, to create a panoramic industry chain (Wu, 2021).

**H2:** Service operation has a positive impact on

the development status of the smart elderly care industry chain integration.

The improvement of the service system has positive significance to the integration of the smart elderly care industry chain (Lei & Han, 2017). A perfect elderly care industry chain system needs to apply modern information technology, build an interoperable elderly care industry platform, improve the quality of service personnel, integrate multiple resources, and act in a unified and coordinated manner (Zhang, 2020).

**H3:** The service system has a positive impact on the development status of the smart elderly care industry chain integration.

Integrated policy tools with the P-TRM model were used to analyze the policy texts issued by the Chinese government from 2011-2019, and found differences in environmental, supply, and demand-based policy tools for smart elderly care industry policies, as well as the differences and deficiencies in the use of policy tools at each development stage. First, it is necessary to increase the supply of policy tools, enhance government support, and exert policy influence. Second, it is vital to clarify the roles of the government and market, enhance social support, and create a high-quality market-oriented environment (Huang & Zhang, 2020).

**H4a:** The service environment has a positive moderating effect on the relationship between demand structure and development status of the smart elderly care industry chain integration.

**H4b:** The service environment has a positive moderating effect on the relationship between the service operation and development status of the smart elderly care industry chain integration.

**H4c:** Service environment has a positive moderating effect on the relationship between the service system and development status of the smart elderly care industry chain integration.

## III. Questionnaire Design and Reliability Testing

### 1. Questionnaire Scale Design and Correction

The data for this study were obtained mainly through questionnaires, all questions were based on a seven-point Likert scale system with individual subjective assignment, and the scores represented the level of agreement with the questions asked. Among them, 7 was strongly agree, 6 agree, 5 basically agree, 4 generally agree, 3 basically disagree, 2 disagree, and 1 was strongly disagree. After the first draft of the questionnaire was designed, 50 pre-research questionnaires were distributed and collected to test the reliability and validity; then, the questionnaire scale was further revised by combination with expert analysis. After adjusting the options in each variable, the number of measurement scale questions was increased to 64 items, and the validity analysis was conducted again.

### 2. Formal Questionnaire Distribution and Collection

This study was conducted from June 2021 to October 2021, and the questionnaires were mainly selected for distribution in Shandong Province, China, with both on-site field distribution and online distribution. The economic development level of China's Shandong Province is perennially among the highest in China, and local residents are increasingly demanding quality of life needs, and are more concerned about the issue of elderly care. Meanwhile, Shandong Province is the only province in China with an elderly population of more than 20 million, with 21,221,000 people over 60 years old, accounting for 20.9% of the province's population, and has entered a moderately aging society, which is representative.

Stratified random sampling was used in the questionnaire distribution process, and the gender ratio of the sample was balanced as much as possible; the options of age, education level, occupation, and monthly household income

were quotas. The returned questionnaires were screened, and the number of valid questionnaires was 1,021.

## 3. Reliability Test Analysis

A reliability analysis verifies the internal consistency of the scale; that is, it examines whether the same content or concept can be measured independently between different items. This study mainly used Cronbach's a coefficient test to examine the internal consistency of the scale, and the value of the Cronbach's α coefficient was between 0 and 1. If the α coefficient does not exceed 0.6, the internal consistency reliability is generally considered insufficient; reaching 0.7-0.8 indicates that the scale has considerable reliability, and reaching 0.8-0.9 indicates that the scale has very good reliability.

**Table 1.** Reliability Statistics

| | Cronbach's Alpha | # of Items |
|---|---|---|
| Questionnaire | .898 | 20 |
| Demand Structure | .921 | 3 |
| Service Operation | .870 | 3 |
| Service System | .851 | 3 |
| Service Environment | .655 | 3 |
| Development Status | .912 | 4 |
| Service Feedback | .835 | 4 |

The reliability of this study scale was 0.898; the dimensional reliability ranged from 0.655 to 0.921, indicating that the study scale has high reliability, with good stability and consistency.

## 4. Exploratory Factor Analysis

Factor analysis refers to the use of a relatively small number of factors to show the association between multiple factors, grouping variables that are relatively related and closely related into one category, so that these fewer factors can summarize and reflect the vast majority of information in the original data. Firstly, the KMO value test and Bartlett's sphere test were mainly used to verify whether each question item in this study could be subjected to factor analysis before conducting the factor analysis. Kaiser gave the commonly used KMO metrics: above 0.9 is very suitable; 0.8 is suitable; 0.7 is average; 0.6 is not very suitable; and below 0.5 is extremely unsuitable.

**Table 2.** KMO and Bartlett's Test

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .869 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 10938.598 |
| | df | 153.000 |
| | Sig. | .000 |

The validity of this study was 0.869, indicating that the data were suitable for factor analysis. Bartlett's test of sphericity chi-square value was 10938.598, $p<0.01$, indicating that the relationship between the individual question items was good for factor analysis.

**Table 3.** Communalities

| | Initial | Extraction |
|---|---|---|
| D1 | .727 | .744 |
| D2 | .813 | .994 |
| D3 | .743 | .767 |
| Ee2 | .697 | .843 |
| Ee3 | .697 | .782 |
| F1 | .559 | .680 |
| F2 | .610 | .742 |
| F3 | .577 | .674 |
| I1 | .288 | .458 |
| I2 | .278 | .482 |
| M1 | .784 | .840 |
| M2 | .832 | .928 |
| M3 | .742 | .801 |
| M4 | .508 | .570 |
| N1 | .659 | .849 |
| N2 | .595 | .699 |
| N3 | .520 | .611 |
| I3 | .239 | .389 |

Note: Extraction Method: Generalized Least Squares.

One or more communality estimates greater than 1 were encountered during iterations. The resulting solution should be interpreted with caution.

As can be seen from the table, D stands for demand structure, E for service management, F for service system, I for service environment, M for development and N for service effect, the common factor variance of all variables ranged from 0.824 to 0.962, all of which were greater than 0.2, indicating a high degree of commonality among the variables and suitability for placement in factor analysis.

**Table 4.** Total Variance Explained

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| Factor | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 6.851 | 38.060 | 38.060 | 4.700 | 26.110 | 26.110 | 2.761 | 15.341 | 15.341 |
| 2 | 2.832 | 15.734 | 53.794 | 3.659 | 20.328 | 46.437 | 2.293 | 12.739 | 28.080 |
| 3 | 1.480 | 8.225 | 62.019 | 1.590 | 8.834 | 55.272 | 2.154 | 11.968 | 40.048 |
| 4 | 1.310 | 7.278 | 69.296 | 1.044 | 5.800 | 61.071 | 2.040 | 11.336 | 51.384 |
| 5 | 1.107 | 6.148 | 75.444 | .562 | 3.120 | 64.191 | 1.782 | 9.898 | 61.282 |
| 6 | .681 | 3.781 | 79.225 | .840 | 4.669 | 68.861 | 1.364 | 7.579 | 68.861 |
| 7 | .589 | 3.270 | 82.496 | | | | | | |
| 8 | .523 | 2.903 | 85.399 | | | | | | |
| 9 | .443 | 2.459 | 87.858 | | | | | | |
| 10 | .408 | 2.265 | 90.123 | | | | | | |
| 11 | .354 | 1.969 | 92.092 | | | | | | |
| 12 | .288 | 1.602 | 93.694 | | | | | | |
| 13 | .279 | 1.549 | 95.242 | | | | | | |
| 14 | .231 | 1.285 | 96.527 | | | | | | |
| 15 | .207 | 1.151 | 97.678 | | | | | | |
| 16 | .191 | 1.060 | 98.739 | | | | | | |
| 17 | .127 | .705 | 99.444 | | | | | | |
| 18 | .100 | .556 | 100.000 | | | | | | |

Note: Extraction Method: Generalized Least Squares.

As can be seen from the table, a total of 6 factors were extracted from the factor analysis, which explained 68.861% of the total variance, more than 50%, meeting the requirements of the factor analysis.

**Table 5.** Rotated Factor Matrixa

| | Factor | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| M2 | .893 | | | | | |
| M1 | .851 | | | | | |
| M3 | .775 | | | | | |
| M4 | .621 | | | | | |
| D2 | | .914 | | | | |
| D3 | | .685 | | | | |
| D1 | | .684 | | | | |
| N1 | | | .855 | | | |
| N2 | | | .752 | | | |
| N3 | | | .696 | | | |
| F2 | | | | .760 | | |
| F1 | | | | .719 | | |
| F3 | | | | .689 | | |
| Ee2 | | | | | .772 | |
| Ee3 | | | | | .688 | |
| I2 | | | | | | .655 |
| I1 | | | | | | .623 |
| I3 | | | | | | .557 |

Notes: 1. Extraction Method: Generalized Least Squares.
2. Rotation Method: Equamax with Kaiser Normalization.
3. a: Rotation converged in 10 iterations.

It can be seen from the table that the parameters of the model all meet reasonable standards, indicating that the model's fitting degree reaches the standard and the model is acceptable.

## 5. Confirmatory Factor Analysis

**Table 6.** Model Fit Index

| Parameter | Reasonable Standard | Good Standard | Model Values | Parameters of the Judgment | Whether it meets the standard |
|---|---|---|---|---|---|
| CMIN | | | 571.531 | | |
| CMIN/DF | <5 | <3 | 4.763 | good | Yes |
| GFI | >0.8 | >0.9 | 0.934 | good | Yes |
| AGFI | >0.8 | >0.9 | 0.907 | good | Yes |
| NFI | >0.8 | >0.9 | 0.948 | good | Yes |
| IFI | >0.8 | >0.9 | 0.959 | good | Yes |
| TLI | >0.8 | >0.9 | 0.947 | good | Yes |
| CFI | >0.8 | <0.9 | 0.958 | good | Yes |
| RMSEA | <0.08 | <0.05 | 0.064 | reasonable | Yes |

It can be seen from the table that the parameters of the model all meet reasonable standards, indicating that the model's fitting degree reaches the standard and the model is acceptable.

## 6. Discriminant Validity

**Table 7.** Correlations

| | Demand Structure | Service Environment | Service Operation | Service System | Development Status | Service Feedback |
|---|---|---|---|---|---|---|
| Demand Structure | 0.897 | | | | | |
| Service Environment | .280** | 0.626 | | | | |
| Service Operation | .530** | .307** | 0.814 | | | |
| Service System | .821** | .274** | .625** | 0.888 | | |
| Development Status | .312** | .239** | .358** | .280** | 0.817 | |
| Service Feedback | .355** | .288** | .390** | .315** | .898** | 0.859 |

Note: RMS of 4 AVE of black body surface.

## IV. Empirical Analysis

### 1. Weighting Analysis

0) The data were first subjected to factor analysis to obtain a table explaining the total variance and a table of rotated component matrices.

1) The rotated loadings of each factor are compared to the root mean square of the eigenvalues of its factor to obtain a new column of data called the root mean square ratio of the loadings.

$$F_i = X_{ij}/\sqrt{M_i}$$

( $X_{ij}$ denotes the $j$-th loading of the $i$-th factor, and $M_i$ denotes the eigenvalue of the $i$-th factor)

2) The root mean square ratio of the loadings of each factor is multiplied by the proportion of variance explained by the corresponding factor and then summed, and the sum is compared with the total variance explained to obtain the unstandardized indicator weights for each variable.

$$S_i = \sum_1^n F_i * E_i / \sum_1^n E_i$$

($E_i$ denotes the variance explained by the $i$-th factor)

3) Next is the normalization of non-standardized indicator weights. The non-standardized transformed indicators of each variable are compared with the total non-standardized weights to obtain the standardized weights.

$$Q_i = S_i / \sum_i^n S_i$$

($Q_i$ denotes the normalized weight of the $i$-th factor)

4) According to the categorization of indicators, we find the weights of the factors.

**Table 8.** Factor Weights

| Secondary Indicators | Weight | Tertiary Indicators | Weight | Sort By |
|---|---|---|---|---|
| Demand Structure AA | 0.175 | D1 | 0.0587 | 5 |
| | | D2 | 0.0606 | 3 |
| | | D3 | 0.0559 | 7 |
| Service Operation AA | 0.147 | Ee1 | 0.0517 | 10 |
| | | Ee2 | 0.0461 | 16 |
| | | Ee3 | 0.0489 | 15 |
| Service System AA | 0.155 | F1 | 0.0499 | 13 |
| | | F2 | 0.0512 | 12 |
| | | F3 | 0.0542 | 8 |
| Service Environment AA | 0.086 | I1 | 0.0313 | 18 |
| | | I2 | 0.0278 | 19 |
| | | I3 | 0.0269 | 20 |
| Development Status AA | 0.232 | M1 | 0.0591 | 4 |
| | | M2 | 0.0607 | 2 |
| | | M3 | 0.0631 | 1 |
| | | M4 | 0.0490 | 14 |
| Service Feedback AA | 0.205 | N1 | 0.0565 | 6 |
| | | N2 | 0.0515 | 11 |
| | | N3 | 0.0440 | 17 |
| | | N4 | 0.0529 | 9 |

As can be seen from the table, among the six secondary indicators of development status, service feedback, demand structure, service system, service operation, and service environment, development status, with 0.232, is followed by service feedback with a weight of 0.205. Demand structure, with a weight of 0.175, ranks third. Service system, with a weight of 0.155, ranks fourth; service operation, with a weight of 0.147, ranks fifth; and service environment, with a weight of 0.086, ranks sixth.

## 2. Correlation Analysis

In the correlation analysis of each numerical variable, the common statistical analysis method was the Pearson correlation coefficient, which is used to measure the correlation between each item or variable, and to reveal and reflect the strength of correlation between different items or variables through the form of numerical quantification.

**Table 9.** Correlations

| | | Demand Structure | Service Operation | Service System | Service Environment | Industry Chain Integration Influencing Factors |
|---|---|---|---|---|---|---|
| Demand Structure | Pearson Correlation | 1 | .821** | .530** | .280** | .355** |
| | Sig. (2-tailed) | | .000 | .000 | .000 | .000 |
| | N | 907 | 907 | 907 | 907 | 907 |
| Service Operation | Pearson Correlation | .821** | 1 | .625** | .274** | .315** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 |
| | N | 907 | 907 | 907 | 907 | 907 |
| Service System | Pearson Correlation | .530** | .625** | 1 | .307** | .390** |
| | Sig. (2-tailed) | .000 | .000 | | .000 | .000 |
| | N | 907 | 907 | 907 | 907 | 907 |
| Service Environment | Pearson Correlation | .280** | .274** | .307** | 1 | .288** |
| | Sig. (2-tailed) | .000 | .000 | .000 | | .000 |
| | N | 907 | 907 | 907 | 907 | 907 |
| Industry Chain Integration Influencing Factors | Pearson Correlation | .355** | .315** | .390** | .288** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | |
| | N | 907 | 907 | 907 | 907 | 907 |

Note: **. Correlation is significant at the 0.01 level (2-tailed).

As can be seen from the table, the five variables of demand structure, service operation, service system, service environment, and industry chain integration influence factors show significant correlation between two and two, with correlation coefficients ranging from 0.280 to 0.821.

## 3. Regression Analysis

In statistics, regression analysis is mainly used to describe and reflect the influence relationship by forming a regression equation, such that the degree and direction of influence between different variables or between different items can be grasped in a visual and accurate way.

The regression model results consist of three main parts. First is the regression model summary table; the adjusted R-squared of the summary table mainly reflects the magnitude of the fit of the model, or the magnitude of the explanation of the corresponding variable of the independent variable. The second part, the ANOVA table of the regression model, is mainly used to prove the scientific reasonableness of the regression model; when the significance of the regression model is less than 0.05, that regression model is scientifically reasonable and acceptable. The third part, the regression coefficient table of the model, reflects the regression coefficient and significance level of the independent variable.

**Table 10.** Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .457a | .209 | .206 | .88918 |

Note: a. Predictors: (Constant), Service Environment, Demand Structure, Service Operation, and Service System.

As can be seen from the table, the adjusted R-squared of the model is 0.206, indicating that the fit of the model is average, indicating that the degree of explanation of the independent variables corresponding to the variables is only 20.6%; part of the variance cannot be explained.

**Table 11.** ANOVA

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 188.640 | 4 | 47.160 | 59.648 | .000b |
| | Residual | 713.160 | 902 | .791 | | |
| | Total | 901.800 | 906 | | | |

Notes: 1. a. Dependent Variable: the integration of the smart elderly care industry chain.
2. b. Predictors: (Constant), Demand Structure, Service Operation, Service System, and Service Environment.

As can be seen from the table, the F-value of the regression model is 59.648, with a significance of 0.000, which is less than 0.05, indicating that at least one of the independent variables in the regression model is significant, meaning that the regression model is scientifically reasonable and acceptable.

**Table 12.** Coefficients

| | | Unstandardized Coefficients | | Standardized Coefficients | | | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | Model | B | Std. Error | Beta | t | Sig. | Tolerance | VIF |
| 1 | (Constant) | 2.076 | .250 | | 8.320 | .000 | | |
| | Demand Structure | .312 | .064 | .253 | 4.847 | .000 | .323 | 3.098 |
| | Service Operation | 0.345 | .065 | .268 | 4.932 | .000 | .276 | 3.624 |
| | Service System | .243 | .034 | .273 | 7.075 | .000 | .589 | 1.698 |
| | Service Environment | .138 | .027 | .163 | 5.183 | .000 | .886 | 1.128 |

Note: a. Dependent Variable: the integration of the smart elderly care industry chain.

## 4. Moderating Effect

As can be seen from Table 9, demand structure, service operation, and service system have significant influence on the integration of the smart elderly care industry chain (P <0.05), with influence coefficients of 0.344, 0396, and 0.494.

**Table 13.** Results of the Environmental Regulation Effect of Elderly Care Service

| | | | Estimate | S.E. | C.R. | P | Standard Parameters | | Parameter Difference |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Low group | High group | |
| Integration of the Smart Elderly Care Industry Chain | ← | Demand Structure | 0.344 | 0.104 | 3.317 | *** | 0.308 | 0.227 | -1.071 |
| Integration of the Smart Elderly Care Industry Chain | ← | Service Operation | 0.396 | 0.108 | 3.695 | *** | 0.275 | 0.367 | 0.129 |
| Integration of the Smart Elderly Care Industry Chain | ← | Service System | 0.494 | 0.075 | 6.539 | *** | 0.442 | 0.457 | 0.148 |

## V. Conclusion

From the above analysis, it can be seen that there are problems with the current demand tendency of the aging group, the operation mode of smart elderly care enterprises, the service mode of the smart elderly care industry, and the elderly care service environment, which limit the integration of the smart elderly care industry chain to a certain extent. Based on this, the study proposes the four following recommendations.

There is a need to clarify the demand tendency of different age groups of elderly for smart elderly care, reasonably divide the demand level of the elderly groups, and clarify various types of needs said groups. At present, the national level guidelines and social pension policies are supportive of the development of the smart elderly care industry. There is a need to gather multiple social subjects in the same direction to jointly participate in smart elderly care services to realize the scale effect of the integration of the smart elderly care industry chain and to guarantee the healthy development of the smart elderly care industry. Smart elderly care should integrate all industry chain resources, give full play to the advantages of different industry chain resources, achieve complementary advantages of all industry chain resources, and realize the deep integration of the smart elderly care industry chain. Therefore, in the operation process, smart elderly care enterprises should clarify the demand tendency of different age groups for smart elderly care, and take this as a guide to provide different smart elderly care products for the majority of elderly groups, promote the development of the smart elderly care industry chain, and realize the integration of the smart elderly care industry chain.

It is vital to improve the operation of smart elderly care enterprises. The key to the horizontal integration of the value chain of the smart elderly care industry is that elderly care enterprises rely on technology, management, and brands, and form competitive advantages through chain operation, thus improving the value of enterprise products/services and profitability. For example, most of China's current elderly care industry (including private elderly care institutions) is a micro-profit industry with large investments and long payback periods, so the advantages of using a chain of elderly care institutions (especially those with smart elderly care systems) are reflected. First, it can achieve reductions in operating costs by chain and scale operation. Second, it can enhance the market power of enterprises with competitive advantages (including brand degree and market barriers), thus improving the integration of enterprise resources and increasing the profitability of enterprises. Third, it can promote the upgrading and development of the whole industrial chain via the proliferation of technology, management, and brand.

There must also be the cultivation of a complete service model of the smart elderly care industry. "Internet +", as the core of the integration of the technology chain of the smart elderly care industry, can change the traditional service mode of the elderly care industry through information technology, realize the overall industrial development linkage, improve the operational efficiency of the whole industry chain, and thus increase the efficiency of resource utilization. Therefore, the core of the integration of "Internet +" and elderly care industry is to build a smart elderly care service information platform covering the smart elderly care database system, smart elderly care service application system, and smart elderly care service supervision system.

There must also be established a sound industry system. Smart elderly care needs to have a sound system with scientific unified standards as the foundation. At present, there is still no standardized institutional system and unified guiding standard for China's smart elderly care service market, and there is no effective supervision guarantee. Therefore, on the basis of the pilot work carried out in various places, not only based on local reality, refining work experience, and lessons learned, the development of practical and specific standards also need to focus on top-level design, improve the system, develop unified standards, and strengthen the implementation of publicity so that the system and standards are constantly

revised and improved in practice. At the same time, a scientific and sound monitoring mechanism and guarantee system should be established. It is necessary to establish institutional norms such as service supervision, evaluation mechanisms, and legal protection mechanisms that are compatible with the development of the smart elderly care industry. While formulating standards and fully implementing them, it is vital to strengthen quality assessments, supervision, and inspection to ensure the implementation and perfection of industry standards for smart elderly care, and realize the systemic, effective, and sustainable operation of system and standard norms.

## References

Coase, R. H. (1937). The nature of the firm. *Economica*, *4*(16), 386-405.

Hirschman, A. O. (1958). *The strategy of economic development.* Yale University Press.

Huang, J., & Zhang, X. (2020). Smart elderly care industry policies in China from the policy tool-technology roadmap model. *Forum on Science and Technology in China*, *1*, 69-79.

Hussain, A., Wenbei, R., Silva, A. L., Nadher, M., & Mudhish, M. (2015). Health and emergency-care platform for the elderly and disabled people in the smart city. *Journal of Systems and Software*, *110*(12), 253-263.

Lei, Z., & Han, Y. (2017). Service model problem and countermeasure of smart care for the aged in China. *Social Security Studies*, *2*, 30-37.

Liao, C. (2019). Solution and realizing path of the overall problem of intelligent aged care service. *Review of Economy and Management*, *6*, 5-13.

Liao, C., Li, Y., & Li, Y. (2019). Research on the optimization path of smart endowment industry based on industry chain integration theory. *China Soft Science*, *4*, 50-56.

Rui, M., & Liu, M. (2006). A literature review about integration of industry Chain. *Industrial Economics Research*, *3*, 60-66.

Marshall, A. (1920). *Principles of economics.* Macmillan, 1877-1890.

Wei, Z., Gu, X., & Li, Y. (2018). Analysis on the integrated development mode of health industry chain based on demand side. *Chinese Health Economics*, *37*(12), 74-76.

Williamson, O. E. (1981). The modern corporation: Origins, evolution, attributes. *Journal of Economic Literature*, *19*(4), 1537-1568.

Wu, X. (2021). Development trend, realistic dilemma, and optimization path of the smart elderly care industry. *East China Economic Management*, *35*(7), 1-9.

Zhang, B. (2020). New economy in new era: The development path of smart health and elderly care industry. *Lanzhou Academic Journal*, *6*, 200-208.

The Journal of Global Business and Trade

ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.123

Journal of Global Business and Trade

https://www.pfw.edu/jgbt

# The Effects of Entrepreneurs' Optimism and Mindfulness on Psychological Well-Being: The Mediating Effects of Emotional Exhaustion

**Jong-Wook Kim[a], Mi-Kyeong Lee[b], Jong-Keon Lee[c]***

[ab] *Graduate School of Entrepreneurship & Industrial Management, Chung-Ang University, South Korea*
[c] *School of Business Administration, Chung-Ang University, South Korea*

*Received 29 June 2022, Revised 23 July 2022, Accepted 10 August 2022*

**ABSTRACT**

**Purpose –** The purpose of this study was to examine the impact of optimism on emotional exhaustion and psychological well-being of entrepreneurs, and the impact of mindfulness on emotional exhaustion and psychological well-being of entrepreneurs and analyzed the mediating effects of emotional exhaustion on relationships between these variables.
**Design/Methodology/Approach –** Data were collected through a questionnaire for 156 CEOs of start-up companies doing business in Seoul and Gyeonggi-do to examine the relationship between research variables.
**Findings –** The findings of this study are as follows. First, mindfulness has been shown to have positive effects on emotional exhaustion, autonomy, environmental mastery, and purpose in life. Second, optimism has been shown to have a partly positive effect on psychological well-being. Third, mindfulness has been shown to have positive effects on psychological well-being. Fourth, emotional exhaustion has been shown to have negative effects on autonomy, environmental mastery, and purpose in life. Fifth, emotional exhaustion has been shown to meditate the relationship between mindfulness and psychological well-being.
**Research Implications –** Results of this study suggested theoretical implications as follows. First, this study has theoretical significance in that empirical analysis found that optimism raises the level of environmental mastery and purpose in life. Second, the findings are theoretical in that empirical analysis revealed that the emotional exhaustion of entrepreneurs had a negative impact on autonomy, environmental mastery, and purpose in life. Finally, the findings are theoretical in that they suggest that emotional exhaustion is an important variable that mediates the relationship between mindfulness and psychological well-being.
Results of this study suggested practical implications as follows. First, the results of this study suggest practical implications that it is important to devise a plan to increase the level of mindfulness of entrepreneurs. Second, the results of this study suggest practical implications that it is important for entrepreneurs to make efforts to increase the level of optimism. Finally, the results of this study suggest practical implications that various interests should be paid to prevent entrepreneurs from burning out emotionally.

***Keywords:*** emotional exhaustion, mindfulness, psychological well-being, optimism
***JEL Classifications:*** J24, M14

* *Corresponding Author, E-mail: jkeonlee@cau.ac.kr*

## I. Introduction

Entrepreneurs expect to spread their vision through start-ups and pursue a happy life by achieving their vision. In this context, the realization of psychological well-being is very important for entrepreneurs. Psychological well-being refers to the effectiveness of an individual's psychological function (Wright & Cropanzano, 2000). Psychological well-being refers to a state in which an individual obtains pleasure in life and discovers his true potential (Ryff & Keys, 1995); that is, psychological well-being can be said to pursue growth with meaning and a purpose in life, and realize potential. Thus, it can be said that the study of this variable is meaningful in that the pursuit of psychological well-being is the basis for continuous challenges for entrepreneurs.

It is very difficult and psychologically exhausting for entrepreneurs to strive for business success in a rapidly changing start-up environment. Emotional exhaustion, or a state of psychological exhaustion, makes entrepreneurs situation more challenging and frustrating. From this point of view, research on factors that lower the emotional consumption of entrepreneurs is important. Emotional exhaustion refers to a state in which emotions are depleted by excessive work (Maslach et al., 2001). Entrepreneurs continue to fight with themselves, starting a business in anticipation of success, fiercely competing with competitors to survive and grow. When looking at entrepreneurs, they tend to think only of the positive aspects of success and prosperity, behind which the frustrations and pains they experience in adversity make it more difficult, facing psychological exhaustion, and these negative results lower their psychological well-being.

When entrepreneurs are optimistic and full of heart, they will pursue their vision with joy, stay true to the business, and feel rewarded and satisfied. In other words, when the level of optimism and mindfulness of entrepreneurs is high, their emotional exhaustion will be recovered, and psychological well-being will be strengthened. Optimism refers to a set of generalized expectations for outcomes (Malik, 2013; Youssef & Luthans, 2007). Optimism consists of a positive outlook on life and a belief that good things will happen rather than bad things.

Depending on attribution differences, optimists can develop positive expectations associated with improving coping skills in various situations that may arise in the course of synchronizing and pursuing goals (Brissette et al., 2002). On the one hand, mindfulness plays a role in increasing an individual's positive emotions and lowering negative emotions. Individuals with strong mindfulness will decrease their emotional exhaustion because negative emotions are lowered, and the level of psychological well-being can increase as positive emotions are strengthened. Due to these characteristics, optimism and mindfulness can be said to be the main variables that explain emotional exhaustion and psychological well-being.

The purpose of this study is to examine the effect of optimism and mindfulness on emotional exhaustion and psychological well-being of entrepreneurs, and to analyze the mediating effect of emotional exhaustion in the relationship between optimism and psychological well-being.

## II. Theory and Hypotheses

### 1. Optimism and Emotional Exhaustion

Optimism reflects general positive expectations for the future, and has both cognitive and emotional aspects (De Hoogh & Den Hartog, 2008; Peterson, 2000). Optimism refers to the expectation that positive events will occur frequently in the future (Scheier & Carver, 1992), and negative events are temporary for the future of an individual's stable and positive outlook. This optimism is a human virtue that drives individual emotions and behaviors in an organization (Luthans, 2002).

Optimistic tendencies influence individual psychology, attitude, and behavior in various areas such as mental health, adaptation to environment,

and problem solving (Peterson, 2000). Optimism allows individuals to expect things to work out, even when they experience difficult situations, such as frustration (Goleman, 1995). Applying attribution theory, optimists lower their emotional exhaustion by recognizing that their success is likely to occur, and that such success depends on their ability (Seligman, 1998).

People with high levels of positive psychological capital, such as optimism, voluntarily find what they like, immerse themselves, and feel a high level of satisfaction through work achievement (Avey et al., 2006). Individuals with high optimism are quick to cope with adversity and are less likely to be psychologically exhausted by effectively controlling their emotions. Optimism plays a role in reducing emotional consumption by allowing individuals to effectively respond to and resolve stressful situations. Optimists are able to withstand adversity due to external circumstances by intrinsic thinking. Lin (2013) argued that positive psychological capital has a positive effect on lowering the job burnout of organizational members.

Thus, a hypothesis was established as follows.

**H1:** Optimism will be negatively related to emotional exhaustion.

## 2. Mindfulness and Emotional Exhaustion

Mindfulness refers to maintaining a sense of consensus about the present experience and Germer (2005) conceptualized mindfulness as a cautious and receptive form of awareness of the present experience. This mindfulness is a deliberate attention-directed process that points to reality without having a sense of purpose, but making narrow judgments (Kabat-Zinn, 1994). According to Brown and Ryan (2003), mindfulness is an honest and holistic observation of current internal and external experiences rather than a specific cognitive posture for an experience.

Mindfulness is largely divided into mindfulness and social and cognitive mindfulness, which means that one focuses on the ability or method to deliberately perceive what one experiences and feels at the moment, but does not evaluate it in a receptive manner (Kabat-Zinn, 1994). On the other hand, socio-cognitive mindfulness refers to a mental process that draws new changes by sensitively focusing attention on the present moment and context (Langer, 2014).

Bishop et al. (2004) newly presented a definition of mindfulness as the ‘mode of awareness’ after collecting opinions from experts in various fields. Mindfulness in a broader sense can be applied throughout everyday life in a way that uses conscious awareness (Kostanski & Hassed, 2008).

A person with a high level of mindfulness can immerse himself in the activities he or she is performing at a particular present moment, and can open his or her mind and focus to see things in a creative and new light and draw out the possibility of change. On the other hand, a person with a low level of mindfulness commits an error by limiting perception, emotion, or behavior, and approaching an event or situation with prejudice (Langer, 2014).

Individuals who are mindful have a better sense of reality than those who are not, pay attention to what is happening around them, and are well prepared to deal with it. Psychologically, an individual who is mindful does not lose his or her mind, but rather has a clear mental state, and has abundant emotional resources because he or she can respond calmly to daily life.

Individuals who are well cared for will have lower emotional consumption because they can respond emotionally better than those who are not. Mindfulness reduces negative emotions by reducing stress caused by emotions. When an individual has a high level of mindfulness, emotions are controlled more positively and emotional labor decreases. Mindfulness lowers personal pain, a sub-dimensional of negative emotions and empathy. Mindfulness reduces negative factors such as anxiety, negative emotions, and depression.

Thus, a hypothesis was established as follows.

**H2:** Mindfulness will be negatively related to emotional exhaustion.

## 3. Optimism and Psychological Well-Being

Psychological well-being refers to a positive mental state such as happiness or satisfaction (Dadfar et al., 2021). There are two key factors in psychological well-being: (i) the degree to which people experience positive emotions, and (ii) the sense of happiness (Diener, 2000). Ryff (1989) developed a six-factor model of psychological well-being, which contributes to self-acceptance, personal growth, purpose in life, positive relationships with others, environmental mastery, and autonomy, all of which contribute to well-being. In this study, the three variables of autonomy, environmental mastery, and purpose in life are used as dependent variables.

Psychological well-being involves a self-fulfilling perspective amidst psychological stability, not just seeking pleasure (Ryan & Deci, 2001). Psychological well-being refers to the satisfaction that an individual experiences through life, and the satisfaction that comes in the process of discovering his or her true potential based on self-fulfilling and hedonic perspectives (Ryff & Keys, 1995). Diener (1994) argued that well-being takes into account an individual's overall life experience. Diener et al. (2010) and Russell et al. (1989) noted that psychological well-being helps determine the hedonistic dimension of personal emotions (i.e., happiness versus depression). The absence of well-being creates a vulnerability to future adversity, causing a recurrence frequency of high mood disorders (Ryff & Singer, 1996). People who feel depressed feel low self-esteem, which leads to decreased motivation and pessimistic behavior.

People with high optimism tend to look on the bright side of life, constantly striving to achieve goals, expecting the best results in life (Carver & Scheier, 2003). Optimism sets positive expectations for goals set by individuals, synchronizing them to continue to aim for the desired outcome without giving up in the face of adversity (Carver & Scheier, 1998). Optimists tend to respond actively and effectively to and adapt to stress and problematic situations, while pessimists tend to avoid or respond passively to problems with negative expectations of goals (Scheier et al., 2001).

Scheier & Carver (1992) explained that optimism, an individual's psychological resource, is a positive cognitive variable among individual personalities, and that propensity optimism is a general tendency to believe in good and bad consequences from life experiences. In terms of organizational behavior, optimists pursue rewards and enjoyment in their job and work life, so the level of psychological well-being increases because satisfaction increases (Luthans & Youssef, 2007). Individuals with high optimism experience less psychological pain in difficult situations and adapt to situations more positively, thereby enhancing their psychological well-being. Optimism has a positive effect on mental health. Optimism increases subjective well-being.

Thus, a hypothesis was established as follows.

**H3:** Optimism will be positively related to (a) autonomy, (b) environmental mastery, and (c) purpose in life.

## 4. Mindfulness and Psychological Well-Being

Mindfulness is a positive antecedent factor that increases psychological well-being. Chae (2021) suggested a study that the care of the mind of infant teachers has a positive (+) effect on positive emotions such as "Recently, I have been interested in something". Mindfulness has been shown to be effective in relieving emotional symptoms. Mindfulness has been known to have a positive (+) effect on Internet addiction and stress reduction (Jung & Son, 2011), and positive attitude to reduce suicidal thoughts and impulsiveness (Kim & Son, 2010).

Although recognition and interest may appear to be continuous characteristics of normal function, mindfulness can be considered to increase and accommodate awareness and interest in state-of-the-art experiences or realities (Sünbül,

2020). In addition, certain forms of perception and interest that can be paid attention to by all individuals with various abilities have been shown to be associated with an increase in well-being related to psychological factors.

It was reported that a 5-day psychosomatic relaxation group program using mindfulness techniques had significant effects on mood, sleep, and cognitive function for various mental tension and the various mental health-related problems experienced by emotional workers (Lee et al., 2018). It can be seen that mindfulness is a positive variable that helps the mental health problems such as anxiety, stress, and depression that individuals experience. Kim et al. (2021) found that mindfulness had a positive effect on mental health.

Thus, a hypothesis was established as follows.

**H4:** Mindfulness will be positively related to (a) autonomy, (b) environmental mastery, and (c) purpose in life.

## 5. Emotional Exhaustion and Psychological Well-Being

Emotions refer to reactions to certain events or situations that an individual experiences every day in daily life (Choi, 2004). Today, many employees are required to express appropriate emotions while performing duties, so employees are making mental and physical efforts as well as emotional efforts required by the organization (Zapf, 2002).

Employees exhibit a surface performance that disguises their appearance to express the appropriate emotions the organization wants, or tries to change their inner emotional state so that they can actually feel the emotions they need to express (Jang et al., 2017). Existing studies have argued that surface acting directly induces emotional exhaustion and causes non-authenticity in emotional expression, affecting emotional exhaustion (Brotheridge & Lee, 2003; Grandey, 2003). In other words, surface acting allows an individual to experience emotional coordination due to the mismatch between feelings internally and emotions expressed, and this discord further depletes emotional resources (Lee et al., 2007).

Emotional exhaustion can lead to a self-defensive attitude or a lack of indifference or achievement while dealing with customers (Park & Kim, 2018). Continuous and heavy emotional labor causes health problems, such as emotional exhaustion, by increasing employee job stress (Hong & Han, 2014). This emotional exhaustion has negative consequences that reduce the level of employee job satisfaction and personal decision-making, weaken environmental control over oneself and the surrounding environment, and break the belief that an individual's life is purposeful and meaningful.

Emotional exhaustion mainly appears in employees that provide services. Emotional exhaustion causes job stress, decreases employee job satisfaction, and hinders effective job performance. This emotional exhaustion not only causes personal health problems, but also ultimately negatively affects corporate management performance along with individual job performance.

When an individual experiences a state of emotional exhaustion, a sense of purpose in his or her life, control over his or her life, and reward and autonomy for his or her job performance tend to decrease. Yu and Ahn (2021) found that emotional exhaustion of travel industry workers increased turnover intention. This means that psychological well-being will decrease in that when members of the organization are emotionally exhausted, there is a strong intention to change jobs. Im and Rhee (2013) presented research results that job burnout negatively affects worker well-being. As a result, emotional exhaustion lowers psychological and physical health levels (McManus et al., 2002), and lowers psychological well-being (Burke et al., 2010). Ahn and Park (2014) found that burnout consisting of emotional exhaustion, reduced personal fulfillment, and depersonalization reduces job satisfaction.

Thus, a hypothesis was established as follows.

**H5:** Emotional exhaustion will be negatively related to (a) autonomy, (b) environmental mastery, and (c) purpose in life.

### 6. Mediating Role of Emotional Exhaustion

As seen, optimism and mindfulness have positive effects (optimism: Park, 2021, mindfulness: Kim & Park, 2017; Chae, 2021), and emotional exhaustion has negative effects of reducing psychological well-being (Ahn & Park, 2014; Im & Rhee, 2013; McManus et al., 2002). In addition, considering the positive effects of optimism and mindfulness improving psychological well-being (optimism: Luthans & Youssef, 2007; Noh & Yang, 2019, Mindfulness: Kim et al., 2021), emotional exhaustion can be predicted.

Previous studies have analyzed the mediating effect of emotional exhaustion in the relationship between various variables. Chae (2021) suggested that negative emotions similar to emotional exhaustion partially mediate the relationship between mindfulness and empathetic interest. In other words, individuals with strong mindfulness reduce negative emotions, which in turn lowers sympathetic interest, and exerts positivity that directly reduces sympathetic interest.

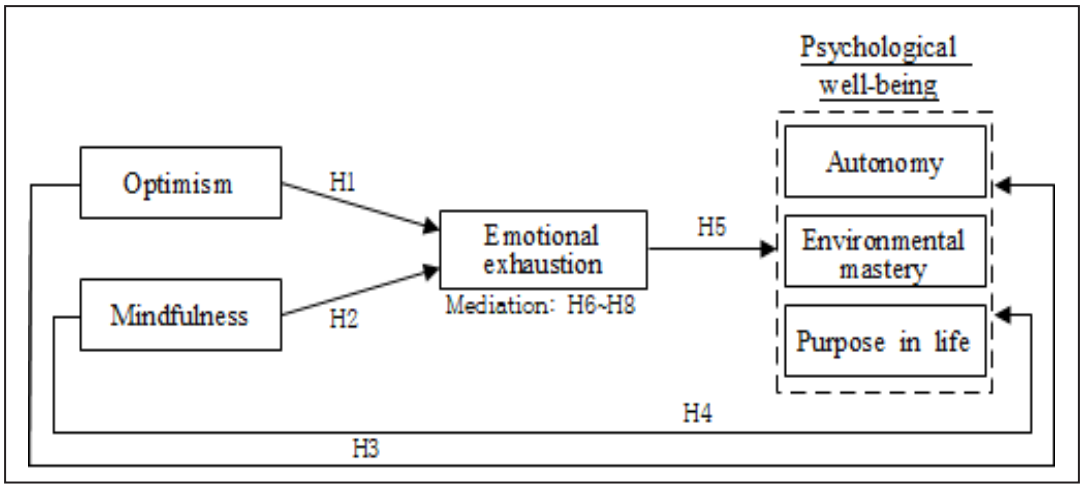
Thus, hypotheses were established as follows.

**H6:** Emotional exhaustion will mediate (a) the relationship between optimism and autonomy, and (b) the relationship between mindfulness and autonomy.

**H7:** Emotional exhaustion will mediate (a) the relationship between optimism and environmental mastery, and (b) the relationship between mindfulness and environmental mastery.

**H8:** Emotional exhaustion will mediate (a) the relationship between optimism and purpose in life, and (b) the relationship between mindfulness and purpose in life.

**Fig. 1.** Research Model and Hypotheses




## III. Methods

### 1. Research Data

This study collected research data through a questionnaire to verify the hypotheses. This study distributed and collected questionnaires after creating the guidelines necessary for preparing questionnaires for CEOs of start-up companies in Seoul and Gyeonggi-do to examine the

relationship between the research variables for start-up companies. After distributing a total of 330 questionnaires, 171 copies were responded (51.8% response rate), and 156 copies were used for hypothesis verification, excluding 15 that were difficult to analyze due to poor answers or omissions.

The characteristics of the respondents are as follows. 80.8% of the respondents were male, and 19.2% were female. 59.6% of the respondents were unmarried, and 40.4% were married. For age, the number of respondents under the age of 30 was 26.9%, those aged 31 to 35 accounted for 26.9%, ages 36 to 40 accounted for 21.2%, 41 to 45 were 11.5%, and those aged 46 or older were 13.5%. For educational background, the number of college graduates was highest at 59.6%, followed by master's graduates with 25%, and 15.3% with professional degrees or lower.

### 2. Measurement

Optimism was measured on a Likert 7-point scale (1 = Strongly disagree, 7 = Strongly agree) using 10 questions from Scheier et al. (1994). The questions measuring optimism included “Even in uncertain times, I generally expect the best”, “I'm always optimistic about my future”, and so on.

Mindfulness was measured on a Likert 7-point scale (1 = Strongly disagree, 7 = Strongly agree) using 15 items from Brown and Ryan (2003). The sample questions measuring mindfulness included “I don't notice them well until I'm bothered by physical tension or discomfort”, “I feel like I’m acting unconsciously without being conscious enough about what I'm doing”, and so on.

Emotional exhaustion was measured on a Likert 7-point scale (1 = Strongly disagree, 7 = Strongly agree) using nine items from Maslach and Jackson (1981). The sample questions measuring emotional exhaustion included “I feel frustrated from my work”, “I feel extremely tired from my work”, and so on.

This study measured psychological well-being by dividing it into three sub-dimensions: autonomy, environmental mastery, and purpose in life. In this study, out of 23 questions on the psychological well-being of Springer and Hauser (2006), autonomy was measured on a Likert 7-point scale (1 = Strongly disagree, 7 = Strongly agree) using 7 questions for autonomy, 8 questions for environmental mastery, and 8 questions for life purpose. The questions measuring autonomy included “It's hard for me to express my opinion on controversial issues”, “I usually change my decision if my friends or family disagree”, and so on. The questions measuring environmental mastery included “I’m good at time management so that everything I need can be done well”, “My responsibilities often seem to overwhelm me”, and so on. The questions measuring purpose in life included “I like to make plans for the future and try to realize them”, “I actively implement the plans I have for myself”, and so on.

This study controlled gender, marital status, and age to accurately examine the relationship between independent variables, parameters, and dependent variables. The gender of the survey respondents was dummied as male = 1 and female = 0, marriage status was dummied as married = 1 and unmarried = 0, and age was measured as the full age.

### 3. Reliability and Validity

This study conducted a reliability analysis and factor analysis measuring Cronbach’s α coefficient to verify the reliability and validity of the questionnaire used for hypothesis verification. As a result of factor analysis, this study extracted six factors: optimism, mindfulness, emotional exhaustion, and psychological well-being (purpose in life, autonomy, and environmental mastery).

Cronbach's α value was .917 for mindfulness, .791 for optimism, .840 for emotional exhaustion, .804 for purpose in life, .732 for autonomy, and .602 for environmental mastery.

## IV. Results

Table 1 shows the descriptive statistics for the measurement variables used in this study.

**Table 1.** Mean, Standard Deviation, and Correlations among Variablesa

| Variable | M | SD | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|
| 1. Optimism | 4.015 | .722 | | | | | |
| 2. Mindfulness | 4.429 | 1.038 | -.030 | | | | |
| 3. Emotional exhaustion | 3.912 | 1.127 | -.101 | -.430*** | | | |
| 4. Autonomy | 3.981 | 1.025 | -.167* | -.149+ | .298*** | | |
| 5. Environmental mastery | 4.045 | .890 | .200* | .333*** | -.402*** | .084 | |
| 6. Purpose in life | 4.673 | 1.013 | .332*** | .080 | -.266** | .000 | .267** |

Note: [a] $n$ = 156, + $p$<.10, *$p$<.05, **$p$<.01, ***$p$<.001.

H1 predicts that optimism will be negatively related to emotional exhaustion. As a result of the analysis, as presented in Model 2 of Table 2, it was found that optimism had no significant effect on emotional exhaustion ($\beta$ = -.051, n.s.). Thus, H1 was not supported.

**Table 2.** Regression analysis for emotional exhaustiona

| Variable | Model 1 | Model 2 |
|---|---|---|
| Controls | | |
| Gender[b] | -.077 | -.157 |
| Marriage[c] | .192+ | .070 |
| Age | .225* | .157 |
| Independent | | |
| Optimism | | -.051 |
| Mindfulness | | -.453*** |
| $R^2$ | .049 | .243 |
| $\triangle R^2$ | | .194*** |
| $F$ | 2.629 | 9.656* |

Note: [a] $n$ = 156, [b] 1 = male, 0 = female, [c] 1 = married, 0 = non-married.

H2 predicts that mindfulness will be negatively related to emotional exhaustion. As shown in Model 2 of Table 2, it was found that mindfulness had a negative effect on emotional exhaustion (β = -.453, p < .001). Thus, H2 was supported.

H3 predicts that optimism will be positively related to (a) autonomy, (b) environmental mastery, and (c) purpose in life. As shown in Model 2 of

Tables 3, 4, and 5, optimism has positive (+) effects on environmental mastery and purpose in life (respectively, β = .202, p < .05; β = .351, p < .001). But optimism does not have significant effect on autonomy (β=.126, n.s.). Thus, H3b and H3c were supported, and H3a was not supported.

**Table 3.** Regression Analysis for Autonomy[a]

| Variable | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Controls | | | |
| Gender[b] | .161* | .151+ | .109 |
| Marriage[c] | -.314** | -.276** | -.258 |
| Age | .052 | .079 | .121 |
| Independent | | | |
| Optimism | | .126 | .113 |
| Mindfulness | | .130+ | .009 |
| Mediator | | | |
| Emotional Exhaustion | | | -.267** |
| $R^2$ | .154 | .185 | .239 |
| $\triangle R^2$ | | .031+ | .054** |
| F | 9.246*** | 6.810*** | 7.791*** |

Notes: 1. [a] $n$ = 156, [b] 1 = male, 0 = female, [c] 1 = married, 0 = non-married.
2. +$p$< 10, *$p$<.05, **$p$<.01, ***$p$<.001.

**Table 4.** Regression Analysis for Environmental Masterya

| Variable | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Controls | | | |
| Gender[b] | .033 | .045 | -.005 |
| Marriage[c] | -.110 | -.014 | .008 |
| Age | .003 | .066 | .115 |
| Independent | | | |
| Optimism | | .202* | .186* |
| Mindfulness | | .341*** | .199* |
| Mediator | | | |
| Emotional Exhaustion | | | -.313*** |
| $R^2$ | .014 | .161 | .235 |
| $\triangle R^2$ | | .147*** | .074*** |
| F | .737 | 5.777** | 7.647*** |

Notes: 1. [a] $n$ = 156, [b] 1 = male, 0 = female, [c] 1 = married, 0 = non-married.
2. +$p$<.10, *$p$<.05, **$p$<.01, ***$p$<.001.

H4 predicts that mindfulness will be positively related to (a) autonomy, (b) environmental mastery, and (c) purpose in life. As shown in Model 2 of Tables 3, 4, and 5, mindfulness has positive (+) effects on autonomy, environmental mastery, and purpose in life (respectively, $\beta$ = .130, $p$ < .10; $\beta$ = .341, $p$ < .001; $\beta$ = .144, $p$ < .10). Thus, H4a, H4b, and H4c were supported.

H5 predicts that emotional exhaustion will be negatively related to (a) autonomy, (b) environmental mastery, and (c) purpose in life. As shown in Model 3 of Tables 3, 4, and 5, mindfulness has negative (-) effects on autonomy, environmental mastery, and purpose in life (respectively, $\beta$ = -.267, $p$ < .01; $\beta$ = -.313, $p$ < .001; $\beta$ = -.291, $p$ < .001). Thus, H5a, H5b, and H5c were supported,

H6a predicts that emotional exhaustion will mediate the relationship between optimism and autonomy. Because optimism had no significant effect on emotional exhaustion ($\beta$ = -.051, n.s.), emotional exhaustion did not mediate the relationship between the two variables. Thus, H6a was not supported.

H6b predicts that emotional exhaustion will mediate the relationship between mindfulness and autonomy. In Step 1, mindfulness had a significant negative (-) effect on emotional exhaustion ($\beta$ = -.051, n.s.), and it was found that mindfulness in Step 2 had a significant positive (+) effect on autonomy ($\beta$ = .130, $p$ < .10). As shown in Model 3 of Table 3, when mindfulness and emotional exhaustion were simultaneously input in Step 3, emotional exhaustion had a significant negative (-) effect on autonomy ($\beta$ = -.267, $p$ < .01); since the effect of mindfulness on autonomy was not significant ($\beta$ = .009, n.s.), emotional exhaustion fully mediated the relationship between the two variables. Thus, H6b was supported.

**Table 5.** Regression Analysis for Purpose in Lifea

| Variable | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Controls | | | |
| Gender[b] | .130 | .056 | .010 |
| Marriage[c] | .310** | .359*** | .379*** |
| Age | .247* | .292** | .337*** |
| Independent | | | |
| Optimism | | .351*** | .336*** |
| Mindfulness | | .144+ | .012 |
| Mediator | | | |
| Emotional Exhaustion | | | -.291*** |
| $R^2$ | .067 | .199 | .263 |
| $\triangle R^2$ | | .132*** | .064*** |
| F | 3.612* | 7.436*** | 8.843*** |

Notes: 1. [a] $n$ = 156, [b] 1 = male, 0 = female, [c] 1 = married, 0 = non-married.
2. + $p$ < .10; * $p$ < .05; ** $p$ < .01; *** $p$ < .001.

H7a predicts that emotional exhaustion will mediate the relationship between optimism and environmental mastery. In Step 1, optimism has no significant effect on emotional exhaustion ($\beta$ = -.051, n.s.), and emotional exhaustion does not mediate the relationship between the two variables. Thus, H7a was not supported.

H7b predicts that emotional exhaustion will mediate the relationship between mindfulness and environmental mastery. In Step 1, mindfulness has a significant negative (-) effect on emotional exhaustion ($\beta$ = -.453, $p$ < .001), and it was found that mindfulness in Step 2 had a significant positive (+) effect on environmental mastery ($\beta$ = .341, $p$ < .001). As shown in Model 3 of Table 4, when mindfulness and emotional exhaustion were simultaneously input in Step 3, emotional exhaustion had a significant negative (-) effect on environmental mastery ($\beta$ = -.313, $p$ < .001); it can be said that it is partially mediated because the effect of mindfulness on environmental mastery is greater in Step 2 than in Step 3 ($\beta$ = .199, $p$ < .05). Thus, H7b was supported.

H8a predicts that emotional exhaustion will mediate the relationship between optimism and purpose in life. In Step 1, optimism has no significant effect on emotional exhaustion ($\beta$ = -.051, n.s.), and emotional exhaustion does not mediate the relationship between the two variables. Thus, H8a was not supported.

H8b predicts that emotional exhaustion will mediate the relationship between mindfulness and purpose in life. In Step 1, mindfulness has a significant negative (-) effect on emotional exhaustion ($\beta$ = -.453, $p$ < .001), and it was found that mindfulness in Step 2 had a significant positive (+) effect on purpose in life ($\beta$ = .144, $p$ < .10). As shown in Model 3 of Table 5, when mindfulness and emotional exhaustion are simultaneously input in Step 3, emotional exhaustion has a significant negative (-) effect on purpose in life ($\beta$ = -.291, $p$ < .001); since the effect of mindfulness on purpose in life is not significant ($\beta$ = .012, n.s.), it can be said that emotional exhaustion fully mediates the relationship between the two variables. Thus, H8b was supported.

## V. Conclusion

Thus far, this study has analyzed the effect of optimism on emotional exhaustion and psychological well-being of entrepreneurs, along with the effect of mindfulness on emotional exhaustion and psychological well-being. In addition, this study analyzed the mediating effect of emotional exhaustion in the relationship between optimism and psychological well-being, and the relationship between mindfulness and psychological well-being.

The results of this study can be summarized in five points. First, it was found that mindfulness was negatively related to emotional exhaustion. This means that the higher the level of mindfulness, the lower emotional exhaustion.

Second, optimism was found to have a positive (+) effect in part on psychological well-being. Specifically, optimism was found to be a positive antecedent factor for environmental mastery and purpose in life, which are sub-dimensions of psychological well-being. This means that the higher the level of optimism, the more desirable their environmental mastery and purpose in life.

Third, it was found that mindfulness was positively related to autonomy, environmental mastery, and purpose in life, which are sub-dimensions of psychological well-being. This means that the higher the level of mindfulness, the higher the level of psychological well-being.

Fourth, emotional exhaustion was found to be negatively related to autonomy, environmental mastery, and purpose in life. This means that the more emotionally consumed entrepreneurs were, the lower their autonomy, environmental mastery ability, and life purpose setting.

Finally, emotional exhaustion was found to mediate the relationship between mindfulness and psychological well-being. Specifically, it was found that emotional exhaustion fully mediates the relationship between mindfulness and autonomy, partially mediates the relationship between mindfulness and environmental mastery, and fully mediates the relationship between mindfulness and purpose in life. This means that the direct effect of mindfulness on psychological well-being

is limited, and the indirect effect of mind-care on psychological well-being through emotional exhaustion is important.

The theoretical implications of the results of this study are as follows. First, this study has theoretical significance in that it has been found through empirical analysis that optimism increases the level of environmental mastery and purpose in life, which are sub-factors of psychological well-being. In particular, this study makes a theoretical contribution in that it revealed that mindfulness lowers emotional exhaustion and positively affects autonomy, environmental mastery, and purpose in life.

Second, the results of this study have theoretical significance in that it revealed through empirical analysis that emotional exhaustion negatively affects autonomy, environmental mastery, and purpose in life. The results of this study suggest that when individuals are emotionally exhausted, autonomy decreases, the ability to control the environment weakens, and they cannot actively implement plans.

Finally, the results of this study make a theoretical contribution in that they suggest that emotional exhaustion is an important variable mediating the relationship between mindfulness and psychological well-being. The results of this study are significant in that it revealed a mechanism that mindfulness reduces emotional exhaustion, which in turn increases the level of autonomy and purpose in life. On the one hand, it has theoretical implications in that it revealed that mindfulness not only directly affects environmental mastery but also indirectly affects environmental mastery through emotional exhaustion.

The practical implications presented by the results of this study are as follows. First, the results of this study suggest practical implications that it is important to devise a plan to increase the level of mindfulness. This is because when raising the level of mindfulness, not only can their emotional exhaustion decrease but it also directly and indirectly increases their psychological well-being. To this end, there is a need for a system in which start-up education institutions develop programs related to improving mindfulness to educate start-ups. In addition, entrepreneurs need to make efforts to strengthen and maintain the level of mindfulness through self-training, such as meditation.

Second, the results of this study suggest practical implications that it is important for entrepreneurs to make efforts to increase the level of optimism. This is because when the level of optimism is high, the level of environmental mastery and purpose in life can increase. Optimism is a factor that has a great influence on individual mindset, attitude, and behavior, and can be developed through continuous education and training and learning (Carver & Scheier, 2003). Therefore, start-up educational institutions should develop various educational programs to increase optimism, and start-ups should not miss the positive expectation that everything will go well, even in the midst of difficulties, to develop optimism.

Finally, the results of this study suggest practical implications that various interests should be paid attention to prevent entrepreneurs from emotional burnout. Entrepreneurs are always in an environment where they work under high tension to succeed in a changing environment. Entrepreneurs should thoroughly take care of their health so that they can relieve stress on their own, and efforts should be made to prevent their bodies from getting tired or mentally weakened through various types of exercise. With these efforts, entrepreneurs will be able to succeed in business while maintaining strong mental health.

This study has several limitations and needs to be supplemented through future studies. First, there is a need for the in-depth discussion of various variables that affect emotional exhaustion and psychological well-being, and additional research that reflects these variables. In addition, it is necessary to look at how the management of emotional exhaustion and psychological well-being connects to corporate performance. Second, this study has limitations in generalizing research results. Since this study measured independent, mediating, and dependent variables from the same source, there may be a problem of common

method bias. In future studies, it is necessary to measure variables using various sources. Finally, this study has limitations according to the design of the research model. This study used the gender, marriage, and age of survey respondents as control variables, and in future studies, it is necessary to include the size, industry, and financial status of the company as control variables so that the relationship between research variables can be more clearly analyzed.

## References

Ahn, D. H., & Park, Y. J. (2014). The effects of one's beliefs about performance ability and burnout on police officers' job satisfaction. *The Korean Journal of Human Resource Development Quarterly*, *16*(1), 103-119.

Avey, J. B., Patera, J. L., & West, B. J. (2006). The implications of positive psychological capital on employee absenteeism. *Journal of Leadership & Organizational Studies*, *13*(2), 42-60.

Bishop, S. R., Lau, M. A., Shapiro, S. L., Carlson, L. E., Anderson, N. D., & Carmody, J. et al. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, *11*(3), 230-242.

Brissette, I., Scheier, M. F., & Carver, C. (2002). The role of optimism in social network development, coping, and psychological adjustment during a life transition. *Journal of Personality and Social Psychology*, *82*(1), 102-111.

Brotheridge, C., & Lee, R. T. (2003). Development and validation of the emotional labour scale. *Journal of Occupational and Organizational Psychology*, *76*, 365-379.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*, 822-848.

Burke, R. J., Koyuncu, M., & Fiksenbaum, L. (2010). Burnout, work satisfactions and psychological well-being among nurses in Turkish hospitals. *Europe's Journal of Psychology*, *1*, 63-81.

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge University Press.

Carver, C., & Scheier, M. (2003). Optimism. In J. L. Lopez & C. R. Snyder (Eds.), *Handbook of positive psychological assessment: A handbook of model and measure* (pp. 75-89). American Psychological Association.

Chae, J. Y. (2021). The influence of ECEC teachers' mindfulness on empathy: Examining the mediating effect of positive and negative Affec. *The Journal of Korean Teacher Education*, *37*(2), 647-670.

Choi, J. S. (2004). The impact of hotel internal marketing on emotional labor and service level of employees. *Convention Research*, *4*(2), 165-188.

Dadfar, M., Gunn, J. F., III, Lester, D., & Abdel-Khalek, A. M. (2021). Love of life model: Role of psychological well-being, depression, somatic health, and spiritual health. *Mental Health, Religion & Culture*, *24*(2), 142-150.

De Hoogh, A. H. B., & Den Hartog, D. N. (2008). Ethical and despotic leadership, relationships with leader's social responsibility, top management team effectiveness and subordinates' optimism: A multi-method study. *The Leadership Quarterly*, 19(3), 297-311.

Diener, E. (1994). Assessing subjective well-being: Progress and opportunities. *Social Indicators Research*, *31*(2), 103-157.

Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, *55*(1), 34-43.

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D. W., & Oishi, S. et al. (2010). New well-being measures:

Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*, *97*(2), 143-156.

Germer, G. (2005). What is mindfulness? In G. Germer, R. Siegel, & P. Fulton (Eds.), *Mindfulness and psychotherapy* (pp. 1-27). Guilford Press.

Goleman, D. (1995). *Emotional intelligence*. Bantam.

Grandey, A. A. (2003). When the show must go on: Surface and deep acting as predictors of emotional exhaustion and service delivery. *Academy of Management Journal*, *46*, 86-96.

Hochschild, A. R. (1983). *The managed heart: Commercialization of human feeling*. University of California Press.

Hong, S. N., & Han, J. S. (2014). Job stresses, burnout, depersonalization, and service recovery performance of hotel employees. *Journal of Tourism and Leisure Research*, *26*(2), 123-141.

Im, C. H., & Rhee, S. Y. (2013). The effects of sleep deprivation on job burnout and well-being: Focusing on mediating roles of sleep ceprivation, job satisfaction and job burnout in the JD-R Model. *Journal of Organization and Management*, *37*(3), 1-38.

Jang, D. I., Tak, I. C., & Lee, J. W. (2017). Relationship conflict, emotion regulation strategy, emotional exhaustion and positive affective delivery in organization. *Korean Journal of Business Administration*, *30*(8), 1459-1486.

Jung, E. S., & Son, C. N. (2011). Effects of mindfulness-based cognitive therapy on internet addiction level, anxiety, and stress in college students with internet addiction. *Korean Journal of Clinical Psychology*, *30*(4), 825-843.

Kabat-Zinn, J. (1994). *Wherever you go there you are: Mindfulness meditation in everyday life*. Hyperion.

Kim, J. O., & Park, Y. M. (2017). Influence of travel agency employees' mindfulness on quality of life: Testing the mediating effect of emotional regulation and emotional exhaustion. *International Journal of Tourism and Hospitality Research*, *31*(12), 5-20.

Kim, M. H., Cheon, S. M., & Yun, J. H. (2021). The mediating effect of mindfulness in the relationship between emotional labor and mental health of a bank clerks. *Korean Journal of Educational Therapist*, *13*(1), 41-56.

Kim, S. H., & Son, C. N. (2010). The effects of KMBSR-Based cognitive therapy on depression, suicidal ideation, and impulsivity in college students. *Korean Journal of Clinical Psychology*, *29*(1), 189-204.

Kostanski, M., & Hassed, C. (2008). Mindfulness as a concept and a process. *Australian Psychologist*, *43*(1), 15-21.

Langer, E. J. (2014). *Mindfulness* (25th anniv. ed.). Da Capo Press.

Lee, D. M., Kim, K. S., & Kim, S. R. (2007). Emotional dissonance as a mediator in the relationship between emotional labor and burnout. *Journal of Organization and Management*, *31*(3), 133-155.

Lee, S. A., Lee, S. J., Yook, Y. S., Huh, Y. J., Lee, M. G., & Cho, H. Y. et al. (2018). Effects of a mindfulness-based mind-body intervention program using marine resources on the improvement of sleep quality and mood symptoms in Korean female emotional labor workers: A pilot study. *Sleep Medicine and Psychophysiology*, *25*(2), 58-67.

Lin, T. L. (2013). The relationships among perceived organization support, psychological capital and Employees' Job burnout in international tourist hotels. *Life Science Journal*, *10*(3), 2104-2112.

Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior*, *23*, 695-706.

Luthans, F., & Youssef, C. M. (2007). Emerging positive organizational behavior. *Journal of Management*, *33*(3), 321-349.

Malik, A. (2013). Efficacy, hope, optimism and resilience at workplace: Positive organizational behavior. *International Journal of Scientific and Research Publications*, *3*(10), 1-4.

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior*, *2*,

99-113.
Maslach, C., Schaufeli, W. B., & Leiter, M. (2001). Job burnout. *Annual Review of Psychology*, *52*, 397-422.
McManus, I., Winder, B., & Gordon, D. (2002). The causal links between stress and burnout in a longitudinal study of UK doctors, *The Lancet*, *359*(9323), 2089-2090.
Noh, S. R., & Yang, S. B. (2019). Testing the mediating effect of rsilience in the relationship between optimism and subjective well-being in college students. *Korean Journal of Youth Studies*, *26*(5), 513-539.
Park, K. H., & Kim, D. K. (2018). Differences on the moderating effects of emotional intelligence between 2 groups to emotional labor and job satisfaction by using structural equation model. *Journal of Tourism and Leisure Research*, *30*(12), 445-460.
Park, M. K. (2021). The effect of the perceived childcare center director's ethical leadership on the childcare teacher's resiliency: The mediation effects of the childcare teacher's self-efficacy and optimism. *The Journal of Korean Policy Studies*, *21*(1), 1-22.
Peterson, C. (2000). The future of optimism. *American psychologist*, *55*(1), 44-55.
Russell, J. A., Weiss, A., & Mendelsohn, G. A. (1989). Affect grid: A single-item scale of pleasure and arousal. *Journal of Personality and Social Psychology*, *57*(3), 493-502.
Ryan, R. M., & Deci, E. L. (2001). On happiness & human potentials, A review of research on hedonic and eudaimonic well-being, *Annual Review of Psychology*, *52*, 141-166.
Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, *57*(6), 1069-1081.
Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revised. *Journal of personality & Social Psychology*, *73*, 549-559.
Ryff, C. D., & Singer, B. (1996). Psychological well-being: Meaning, measurement, and implications for psychotherapy research. *Psychotherapy and Psychosomatics*, *65*(1), 14-23.
Scheier, M. F., & Carver, C. S. (1992). Effects of optimism on psychological and physical well-being: Theoretical overview update. *Cognitive Therapy and Research*, *16*, 201-228.
Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the life orientation test. *Journal of Personality and Social Psychology*, *67*(6), 1063-1078.
Scheier, M. F., Carver, C. S., & Bridges, M. W. (2001). Optimism, pessimism, and psychological well-being. In E. C. Chang (Ed.), *Optimism & pessimism: Implications for theory, research, and practice* (pp. 189-216). American Psychological Association.
Seligman, M. E. P. (1998). *Learned optimism: How to change your mind and your life*. Pocket Books.
Springer, K. W., & Hauser, R. M. (2006). An assessment of the construct validity of Ryff's scales of psychological well-being: Method, mode, and measurement effects. *Social Science Research*, *35*, 1119-1130.
Sünbül, Z. A. (2020). Mindfulness, positive affection and cognitive flexibility as antecedents of trait resilience. *Studia Psychologica*, *62*(4), 277-290.
Wright, T. A., & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology*, *5*(1), 84-94.
Youssef, C. M., & Luthans, F. (2007). Positive organizational behavior in the workplace: The impact of hope, optimism, and resilience. *Journal of Management*, *33*(5), 774-800.
Yu, S. H., & Ahn, D. H. (2021). The effects of emotional labor of travel industry workers on emotional burnout and turnover intention. *Journal of Tourism Management Research*, *25*(3), 291-312.
Zapf, D. (2002). Emotion work and psychological well-being: A review of the literature and some conceptual considerations. *Human Resource Management Review*, *12*(2), 237-268.

ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.139

The Journal of Global Business and Trade

Journal of Global Business and Trade

https://www.pfw.edu/jgbt

# Direct and Indirect Influences of Environmental Hostility on Export Performance

**Marc Immanuel G. Isip[a]*, Rowena DT. Baconguis[b], Dinah Pura T. Depositario[c], Maria Ana T. Quimbo[d], Merlyne M. Paunlagui[e]**

[a]*Department of Industrial Engineering, University of the Philippines Los Baños, Philippines*
[bd]*Institute for Governance and Rural Development, University of the Philippines Los Baños, Philippines*
[c]*Department of Agribusiness Management and Entrepreneurship, University of the Philippines Los Baños, Philippines*
[e]*Center for Strategic Planning and Policy Studies, University of the Philippines Los Baños, Philippines*

*Received 19 June 2022, Revised 15 July 2022, Accepted 9 August 2022*

**ABSTRACT**

**Purpose –** This study is built upon the critique that contingent variables, such as environmental effects, are mostly considered to moderate relationships rather than measured as a direct or indirect influence toward a specific outcome variable of interest. This study aims to contribute to knowledge that the firm's export performance, as the outcome variable, is directly and indirectly influenced by environmental hostility with entrepreneurial orientation and dynamic capabilities along a single path.

**Design/Methodology/Approach –** Grounded on the resource-based view and contingency approach in management, an explanatory sequential research design was used. Using the PLS-SEM technique, quantitative data was collected and analyzed from 108 medium-scale agro-processing firms in the Philippines. A series of interviews was done after to validate quantitative findings and to show the practical manifestation of the variables.

**Findings –** The influence of environmental hostility on export performance is not straightforward, and an indirect, multi-step mediating effect is made through the firm's entrepreneurial orientation and dynamic capabilities. Most importantly, the firm's dynamic capabilities were seen to be the missing link between the EO-export performance relationship, as it gives the better understanding as to why EO alone cannot always influence above-average export performance. Dynamic capabilities are essentially needed along the firm's chain of operations, making dynamic capabilities a major antecedent of export performance.

**Research Implications –** EO is responsible for converting threatening and hostile environmental effects into beneficial outcomes, such as enhanced dynamic capabilities. However, dynamic capabilities are responsible for the effective execution of operations that positively influence an above-average export performance.

***Keywords:*** contingency theory, COVID-19 pandemic, dynamic capabilities, entrepreneurial orientation , PLS-SEM, RBV

***JEL Classifications:*** L66, M10, M16

* *Corresponding author, E-mail: mgisip1@up.edu.ph*

## I. Introduction

The COVID-19 pandemic broke out globally in early 2020 and threatened world development, not just affecting the global economy but also putting every individual's health and safety at risk. Imposed lockdowns, quarantine, and travel restrictions to contain the spread of the virus resulted in the (partial and/or definite) closure of businesses (Che et al. 2020; Fei et al., 2020). The only economic activity that was seen to be thriving in the context of a pandemic was exporting, with empirical evidence that enterprises engaged in international business succeeded in adapting to the effects of the pandemic (Harel, 2021). Moreover, global markets in the European Union, Middle East, United States, Singapore, and countries in East Asia were regarded as attractive markets for exports. Agricultural-based exports were seen to thrive even during adversity, and an unexpected increase in demand for agricultural products was observed (Castle, 2021). However, the high volatility of exporting, particularly among agricultural-based products brought about by the dynamic and uncertain trade environment during the pandemic, pushes the need to revisit the influence of environmental hostility, and to re-examine its relationship in causing (or hindering) above-average export performance, especially when the COVID-19 pandemic turned the environment into a force that disrupted business models developed pre-pandemic.

Coming from two theoretical approaches in the strategic management literature, the 1) resource-based view (RBV) and 2) contingency theory, this study aims to determine how export performance is influenced by factors that are resourced-based and contingent to a context where international trade is constrained and threatened by the pandemic. RBV suggests that the need for valuable, rare, inimitable, and non-substitutable (VRIN) resources in terms of tangible assets, knowledge, and capabilities affects an organization's reliance on other entities; thus, this approach focuses on strategies and internal strengths for exploiting existing firm-specific assets (Barney, 1991; Barney et al., 2021; Bhandari et al., 2022; Chen et al., 2022; Teece et al., 1997). This theoretical underpinning acknowledges the concept of Entrepreneurial Orientation (EO) that characterizes a firm's strategic posture. EO is a combination of firm-level characteristics, behavior, and managerial attribute; it draws from the organizational strategic decision-making models by Mintzberg (1973) and Khandwalla (1977), and was empirically proven to influence resource acquisition of firms (Jiang et al., 2018; Khattak & Ullah 2021; Yin et al., 2021). RBV is further connected to the concept of dynamic capabilities, which is the ability to respond to changes in the external environment whereby the continuous acquisition and manipulation of skills, learning, and the accumulation of organizational, intangible assets are among the most important, instead of just relying on physical fixed assets as resources (Teece et al., 1997). The dynamic capabilities of a firm therefore play a key role during hostility, specifically aiding firm survivability and resilience (Akpan et al., 2021; Hassani & Mosconi 2022). On the other hand, but still in relation to dynamic changes in the external environment, the contingency approach implies that factors such as the environment influence the appropriateness or "fit" of the different forms of organizations (Van de Ven & Drazin, 1984), which is why environmental factors are widely investigated (Duncan, 1972), resulting in many ways to manage and lead an organization to success (Battaglia & Neirotti, 2020). Rosenbusch et al. (2013) stated that the firm's task environment has influence on firm performance, as mediated by EO. Using the contingency approach in evaluating export performance (Sadeghi et al., 2021), performance depends on the context in which a firm is operating. Mentioned and discussed earlier is the context of the COVID-19 pandemic, which created economic restrictions that endangered the access and availability of resources. Thus, it was recommended to emphasize the contextual situation to better understand the determinants of export success. Acknowledging the importance of environmental effects is also consistent with Miller (2011), Covin and Slevin (1989), and Lumpkin and Dess (1996) when the concept of

EO was developed using the foundation of the exploitation and exploration capabilities of an entrepreneurial firm in its environment. This was further supported by the observation that firms that apply the appropriate strategic orientation in a specific environment are more likely to transform advantages provided by the environment into above-average performance (Sciascia et al., 2006; Rosenbusch et al. 2013).

Environmental hostility, entrepreneurial orientation, and dynamic capabilities were drawn from the combination of the RBV and contingency theory (see Navarro-Garcia et al., 2015, 2016) to provide an added measure to make a deeper and more specific understanding of the determinants of export performance. This study, therefore, recognizes the need to contribute to literature by looking at how these variables influence export performance as exemplified in the context of the COVID-19 pandemic, which brought about threats and uncertainty in the global value chain.

The remainder of this paper is organized as follows. The next section discusses the literature review that highlights the research gaps and theoretical support leading to the proposed conceptual model and hypotheses. The methodology of the study is presented thereafter. The final section presents the results and discussions, followed by conclusions, implications, limitations, and areas for future studies.

## II. Review of Literature and Formulated Hypothesis

### 1. Environmental Hostility

Earlier studies by Miles et al. (2011) have associated hostile environments with entrepreneurial behavior, which further leads to entrepreneurial orientation. A hostile environment creates a favorable environment for entrepreneurial decisions to be made; organizations in hostile environments exhibit different attitudes, behaviors, processes, and competencies that resulted in an increase in performance (Onwe et al., 2020). However, a study by Covin and Slevin (1989) showed that hostile environments threaten a firm's viability and performance. Moreover, hostility threatens the survivability of small business firms due to limited capabilities and scarce resources. The impact of a hostile environment on strategies in operations and the survivability of small enterprises has been a staple topic among empirical studies, which yield diverse conclusions that have never been consistently positive (Martins & Rialp, 2011; Tang & Hull, 2012; Torkkeli et al., 2012). Moreover, Tang and Hull (2012) stated that when faced with a hostile environment, firms engage in more innovative and passive cost control strategies; firms manage to see and explore the opportunities through tough competition. A hostile environment leads to EO by means of taking advantage of niche markets that large and tough competitors are likely to ignore. Most small businesses convert threats into opportunities by being creative with strategic processes such as cost controls and new product development. Even though high environmental hostility negatively affects firm performance, it does not affect firm competitiveness; the hostility even amplifies the firm's risk-taking capabilities. Entrepreneurial firms have a tendency to find a way to adapt to and mitigate the effects of the hostile environment.

According to Wiklund and Shepherd (2005), entrepreneurial strategies generally require financial resources to be successful. According to Simsek et al. (2007), even large corporations in entrepreneurial pursuits require substantial resources to prepare for risk and uncertainty, and to support high levels of entrepreneurial activities. The scarcity of resources tends to force the firm to activate internal controls that may lead to proactiveness and innovativeness (George, 2005). In summary, a hostile environment that is debilitating for a firm necessitates the need to explore resources and capabilities, and exploit entrepreneurial activities to stay competitive and achieve high level performance.

The exploitation of opportunities as a means of gaining competitive advantage also entails risk (Voss et al., 2008). Only by taking on the

risks associated with exploration and exploitation activities can firms transform opportunities provided by the environment into competitive advantage and above-average performance (Rosenbusch et al., 2013). Urban (2018) emphasized that, in addition to the ability to exploit opportunities, is the concept of opportunity recognition, which is about the ability of the entrepreneur to evaluate opportunities, and to select only those opportunities that are worth exploiting. In line with this, it was found out that environmental hostility influenced a high level of opportunity recognition. A study by Dele-Ijagbulu et al. (2021) stated that environmental hostility influenced proactiveness, innovation, and risk-taking, with EO as a mediator between hostility and employment growth; their study answered the call of Wales et al. (2013) and Wales (2016) for more research on the antecedents of EO. Michaelis et al. (2022) found that environmental hostility had a significant influence on the entrepreneurial behavior of an individual, specifically in starting business using personal means, or from borrowed funds from family and friends. In a hostile environment, the act of being entrepreneurial is not hindered; rather, hostility influences the individual to be resourceful.

Only a limited number of studies used environmental hostility as an antecedent of EO (Tang & Hull, 2012; Dele-Ijagbulu et al., 2020). There is also a small amount of literature exploring the influence of environmental hostility on dynamic capabilities (Chih et al., 2022), but there is literature that provides support to the idea that dynamic capabilities play a crucial role during hostility (Blessley & Mudambi, 2022; Dovbischuk, 2021; Krammer, 2022). As for the influence of environmental hostility on export performance, there were only a few studies that explored the effect of hostility on the internationalization of a firm (Torkkeli et al., 2012), which provides a good proxy for export performance. There were a few that empirically established the influence of hostility on firm operations: Xue et al. (2019) examined core structural changes in Chinese firms.

Environmental hostility is mostly used as a moderating variable (see Breugst et al., 2020; Chasse & Courrent, 2017; Fuentelsaz et al., 2021; Garcia-Sanchez et al., 2020; Gonzales-Moreno et al., 2019; Kreiser et al., 2019; Liao & Long, 2018; Onwe et al., 2020; Shariff et al., 2019; Strobl et al., 2020; Urban and Mutendadzamera, 2021; Zahoor & Al-Tabbaa, 2021) since only a limited number of scholarly works consider and recognize the association, influence, and the causality of hostility on a firm's strategic posture, and further to export performance. As for the relationship between dynamic capabilities and firm performance, Yoshikuni (2021) and Kalubanga and Gudergan (2022) used environmental hostility or turbulence as a moderating variable in the dynamic capabilities–performance relationship. All this extant literature, whether hostility was used as a mediator or a moderator, provided inconsistent results that leave inconclusive and underdeveloped knowledge pertaining to how (negatively associated) external factors influence firm export performance. The direction of this study is to best understand how above-average export performance is influenced by environmental hostility, rather than the approach of how environmental hostility influences the EO--Export Performance, or even the Dynamic Capabilities--Export Performance relationship. More importantly, extant literature explored more toward overall/general firm performance, providing a great deal of opportunity to contribute to the knowledge of the more specific and uncommon branch of firm performance: export performance. The main intention of this study is to explain which direct and indirect influences hostility have on export performance, and to determine the extent of influence of these factors to export performance. Therefore, the role of EO and dynamic capabilities in the context of this study are explored as mediating factors as they are both intended to explain its effects (partial or full) provided by the environmental hostility (direct or indirect) on export performance. Moreover, this study uses the perspective, as guided by result in the meta-analysis conducted by Rosenbusch et al. (2013), that EO is a mediator, considering the evidence that EO is a causal result of perceived environmental determinants.

**H1:** Environmental hostility positively influences entrepreneurial orientation.
**H2:** Environmental hostility positively influences dynamic capabilities.
**H3:** Environmental hostility positively influences export performance.

## 2. Entrepreneurial Orientation (EO)

EO's operational definition is open to many interpretations depending on firm situation and business model elements. Thus, to generalize, the three dimensions of EO created by Miller in 1983 are innovativeness, proactiveness, and risk-taking (Wales, 2016). Miller (2011) clarified that the EO construct is unidimensional, whereby organizations are expected to showcase altogether the three elements to be considered entrepreneurial. Innovativeness is defined as the engagement of the firm through the introduction of new products and/or services, as well as incorporating technology with the use of research and development. Moreover, it also involves support for new ideas, and for creative, novel, and experimental processes. In addition, innovativeness involves the development of creative, extraordinary, or strange solutions to problems and needs. Risk taking is involved in taking bold actions through business activities that venture into the unknown; other examples that determine this dimension include the acquisition of capital funds or assets through loans, going into investment activities that yield results in the long-term, and committing significant resources to ventures in uncertain business and trade environments. Proactiveness is the behavior of seeking opportunity with a forward-looking perspective driven by the introduction of new products and services ahead of the competition and acting in anticipation of future demand. It is also about taking initiative whenever the situation demands (Miller, 2011; Rauch et al., 2009; Vij & Bedi, 2012).

There are only a few EO-related studies that are context specific (see Ahmed & Brennan, 2019; Faroque et al., 2021; Franca & Rua, 2016; Jalali, 2012; Imran et al., 2017), and calls have been made to contribute further for an enhanced application to specific situations with more empirically valid knowledge (Miller, 2011). EO was not often empirically explored and tested to influence specifically export performance, as reflected from the reviews by Sousa et al. (2008) and Chen et al. (2016) because EO is primarily linked to influence overall firm performance (Lumpkin & Dess, 1996), which is a related concept, but different from export performance. However, there is enough theoretical support for the export performance of firms to be influenced by EO (see Acosta et al., 2018; Akbari et al., 2019; Faroque et al., 2021; Hossain et al,. 2022; Hosseini et al., 2018; Monteiro et al., 2019; Ribau et al., 2017); however, these studies did not explore possible mediators that can come between EO and export performance. Moreover, there are mixed and inconsistent results pertaining to the significance of the three dimensions of EO to export performance that leave more room to further explore the EO--export performance relationship. This paper acknowledges the research opportunity that possible mediation between EO and export performance exists, since EO was found to influence firm behavior toward honing absorptive capabilities (Cho et al., 2022; Rodriguez-Serrano & Martin-Armario, 2019) and network and knowledge capabilities (Zhou et al., 2009), which further influence the innovation and international performance of firms, respectively. In addition, Jankelova and Joniakova (2021) found significant mediation of knowledge-based dynamic capabilities between EO and innovative performance; thus, the concept of dynamic capability is further explored in the next section.

**H4:** Entrepreneurial orientation positively influences export performance.

## 3. Dynamic Capabilities

Recent studies have explored the construct of dynamic capabilities in organizations in a rapidly changing environment in terms of market and technology (Eisenhardt & Martin, 2000; Wang & Ahmed, 2007). Dynamic capability is the organization's ability to build, integrate,

and configure internal and external resources and competence to respond to environmental changes (Teece et al.; 1997). At the core of dynamic capability is the capability to respond to changes in the external environment instead of relying on physical fixed assets as resources. Teece et al. (1997) proposed the continuous acquisition of skills, learning, and accumulation of organizational, intangible assets as a better alternative. The manipulation of these skills and knowledge resources are critical in dynamic environments (Li & Liu, 2014; Wang, 2016). Wang and Ahmed (2007) stated that VRIN (valuable, rare, inimitable, and non-substitutable) resources do not persist over time, and hence cannot be a source of sustainable competitive advantage. Zahra et al. (2006) stated that the majority of previous studies on dynamic capabilities were focused on established and large enterprises due to their capability to acquire resources; this finding provided opportunities for conducting dynamic capability research applied to small and medium enterprises to find how such small firms cope and develop capabilities, even with limited resources.

There is a long list of definitions of dynamic capabilities by previous researchers, which started from the works of Helfat (1997) and Teece et al. (1997). The ambiguities and inconsistencies gained from the various definitions made by many researchers led Zahra et al. (2006) to conclude that dynamic capabilities are viewed as "abilities to reconfigure a firm's resources and routines in a manner envisioned and deemed appropriate by the firm's principal decision-makers" (p. 92). This definition emphasizes the importance of firm capabilities to be dynamic. Moreover, that definition places importance on top-level managers and decision makers such that the necessary vision and skills are needed to direct and enact these capabilities. With that definition, management implications suggest that firms need to constantly learn and be proactive to make necessary (and innovative) changes to retain the dynamism in their capabilities. The contribution by Teece et al. (1997) has been elemental in the development of dynamic capabilities, whereby they defined the concept as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (p. 516). Wang and Ahmed (2007) proceeded to provide their own definition emphasizing that it is an organizational behavior that is sustained to "...integrate, reconfigure, renew and recreate its resources and capabilities and, most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage" (p.35). Wang and Ahmed (2007) were able to provide recommended dimensions that showed potential in the creation of a multidimensional construct; they have identified the common factors of dynamic capabilities to be adaptive capability, absorptive capability, and innovative capability. Over the course of time, these three factors were eventually separated and are treated individually and independently, rather than seen to comprise the dynamic capability construct. This is why empirical studies tackle adaptive capability alone and its influence on other factors (see Ahn, 2017; Chryssochoidis et al., 2016; Eshima & Anderson, 2016; Lu et al., 2010; Zhu et al., 2017); the situation is the same with absorptive capabilities (Rua, 2018; Unal & Donthu, 2014; Zhang, 2009) and innovative capabilities (see Adebanjo et al., 2017; Belkahla & Triki, 2011; Bhupendra & Sangle, 2015; Calik et al., 2017; Lefebvre & Lefebvre, 2002). This consequently eclipsed or overlooked the umbrella construct of dynamic capabilities. In addition to the presence of the various operational definitions of "capabilities", empirical studies on dynamic capabilities specifically were underdeveloped due to no standardized and validated instrument developed specifically for this construct, until Kump et al. (2019) came up with one based on the framework developed by Teece (2007).

Empirical quantitative studies that test the relationship of dynamic capabilities with possible antecedents or to other response variables other than firm performance exist, but are limited. One example is the work by Aslam et al. (2020) that based its working definition of dynamic capabilities on the contribution of Teece (2007). A significant contribution was provided by their study, wherein EO significantly influenced dynamic supply chain

capabilities. Even though the study's result was limited to the context of the supply chain, there is empirical evidence that EO has the possibility to influence the dynamic capabilities of a firm's operations. More importantly, previous work by Khattak and Ullah (2021), Jiang et al. (2018) and Yin et al. (2021) showed that EO influences the acquisition of resources, which is generally one of the dimensions of dynamic capabilities. Randhawa et al. (2021) stated that dynamic capabilities are influenced by market orientation, a different but related concept to EO because it supports innovation and a proactive and market-driving firm behavior. Jiao et al. (2010) also provided empirical evidence of the influence of EO on dynamic capabilities, even if the dimensions (environmental sensing, change and renewal, technological flexibility, and organizational flexibility) used were different from what Teece (2007) provided. Opportunity recognition is also seen to be a key feature of dynamic capabilities (Urban, 2018), and Anwar et al. (2021) found that EO significantly influences this characteristic. Lim and Kim (2019) and Correia et al. (2021) also found dynamic capabilities as a resulting effect of EO, with both studies finding dynamic capabilities as a mediator between EO and firm performance.

As for dynamic capabilities influencing export performance, work by Jafari-Sadeghi et al. (2021) and Martin et al. (2022) explored networking capabilities and its influence on the international performance of firms. Ismail and Isa (2021) stated that a learning orientation which exhibits an organization's ability to acquire, interpret, and transform information into knowledge is seen to influence the trust of organizations for international collaboration. Dynamic marketing capability (DMC) was found by Hoque et al. (2022) and Kim and Lim (2022) to be a significant influence on export performance. While DMC was not identical to how dynamic capabilities were defined by Teece (2007), it still showed that continuous exploration and exploitation of knowledge, resources, and capabilities (in the international market) are important aspects in achieving better firm export performance.

Even though there may be enough literature support to link dynamic capabilities and EO with overall firm performance, extant literature connecting these factors to the more specific construct of export performance is limited and underdeveloped, and this is one of the gaps this study would like to fill.

**H5:** Dynamic capabilities positively influence export performance.

**H6:** Entrepreneurial orientation positively influences dynamic capabilities.

## 4. Export Performance

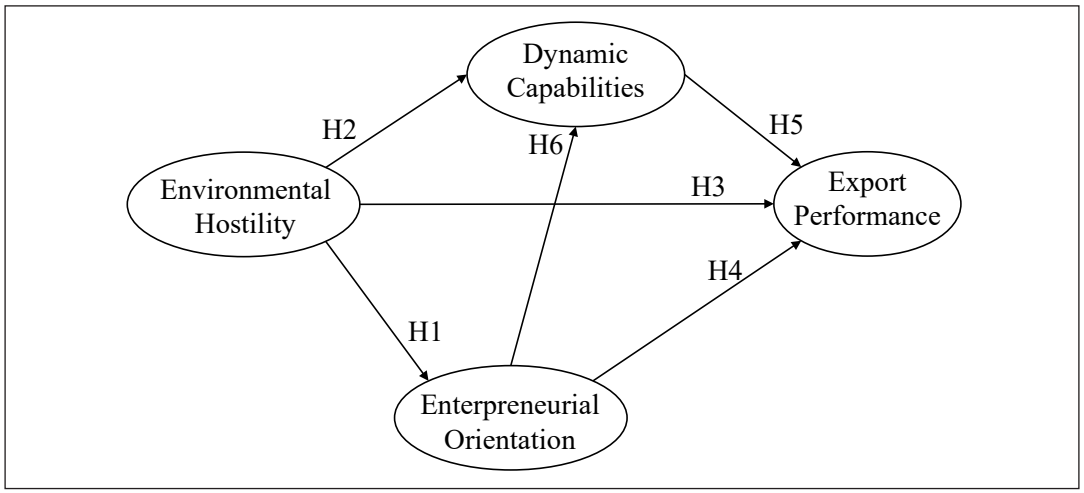
According to Sousa et al. (2008), the survival and expansion of organizations strongly depend on the better understanding of the determinants that influence export performance. For the past decade, extant literature provided ample attention in determining the factors that influence export performance (Pacheco et al., 2022), but few studies were conducted among developing countries and emerging economies (Mataveli et al., 2022) and among small and medium enterprises (Alinasab et al., 2022). Chen et al. (2016) further classified the theoretical underpinnings that RBV is among the foundations for internal factors, while contingency theory is for external factors. The feasibility of using more than one theory in establishing the explanation for influences on export performance was highlighted, and it was further recommended to use RBV with contingency theory. This was in connection with the foremost literature review by Aaby and Slater (1989) that emphasized the two broad categories of antecedents of export performance: 1) internal and 2) external. Internally, export performance is heavily influenced by the firm's attitude toward risk taking (see Robertson & Chetty, 2000). In addition, export performance relies on the behavior of the management team that involves the strategic management of firm resources as firms tend to operate in resource-constrained environments (Chang & Huang, 2022), the development of an effective marketing mix (product, price, promotion, distribution), capabilities for specific markets (Hoque et al., 2022; Reimann et al.,

2022), and on behaviors toward change and market unpredictability through innovation (Battaglia & Neirotti, 2020; Hossain et al., 2022; Pastelakos et al,. 2022) and proactiveness (Hossain et al., 2022; Hoque et al., 2022; Lages et al., 2009). On the other hand, notable external factors from the external environment (Abbey & Adu-Danso, 2022; Prieto-Sanchez & Merino, 2022; Tandrayen-Ragoboor, 2022) are a combination of country- and industry-level factors, such as environmental hostility (as reported by Sousa et al., 2008), market competitiveness (Ambaw & Thangavelu, 2022; Reimann et al., 2022), industry instability (by Zou & Stan, 1998), and institutional environment (by Chen et al., 2016; Jiang et al., 2022). These two theories can explain and support the determinants of export performance; thus, the combination of RBV (which deals by exploiting the internal resources and capabilities of the organization (see Barney, 1991; Penrose, 1959) and contingency theory (which deals with how organizations manage to fit the effects of the external environment with their organizational structure, processes, and systems) make up the theoretical framework, which is consistent with the recommendation by Sousa et al. (2008) and Chen et al. (2016), for this study. The combination also reinforces work done by Navarro-Garcia et al. (2015) and Navarro-Garcia et al. (2016).

## III. Conceptual Framework

The conceptual model to be tested is composed of the following factors: EH (environmental hostility), EO (entrepreneurial orientation), DC (dynamic capabilities), and EP (export performance). The relationships between these factors are represented by the arrows in accordance with how the hypotheses were stated in the previous section (see Fig. 1).

**Fig. 1.** Conceptual Framework




Source: Author

## IV. Methodology

This study followed a mixed-method approach, specifically the explanatory sequential research design (see Creswell & Creswell, 2018). The quantitative approach, which was done first, aimed to test the proposed conceptual model through a survey to collect data. A qualitative approach

was done after through a series of interviews to practically validate the findings of the quantitative analysis.

In the quantitative phase, the survey questionnaire was developed incorporating previously developed instruments that have already achieved accepted validity. Content validation and the pretesting of the questionnaire were done prior to the full-scale survey. After collecting data, statistical analysis using a partial least squares - structural equation modeling (PLS-SEM) was conducted using Smart PLS 3 software. PLS-SEM was utilized in the study due to its appropriateness and robustness that even for a small population (medium-scale agro-processing firms in the Philippines), a valid and reliable outcome is determined (Hair et al., 2019). In addition, this study aims to test the theory that explains the relationships of the factors as illustrated in the conceptual framework (see Fig. 1) from a causal-prediction perspective, which is the reason why the factors under consideration were tested for their influence in achieving above-average export performance. Three phases of analysis were conducted: (1) preliminary analysis of the data, (2) evaluation of the measurement model, and (3) evaluation of the structural model. In the first phase, the data for analysis was subjected to verification and data cleaning, such as the treatment of the missing values and unengaged responses. In the second phase, the measurement model was evaluated in terms of internal consistency, convergent, and discriminant validity. In the third phase, the following tests were performed: collinearity test (VIF), explanatory power ($R^2$), predictive relevance ($Q^2$), effect size ($f^2$), and out-of-sample predictive power through PLSpredict. Further analyses of direct and indirect paths of the structural model were conducted.

In the qualitative phase, a series of in-depth interviews was conducted to collect narratives from the participants. Two participants from two exporting medium-scale agro-processing firms formed the case for this study. The industry sector chosen was the coconut sector since it was believed to be performing well and is believed to potentially grow more in the coming years. According to Tacio (2019), the Philippines is the second largest exporter of coconut products, just behind Indonesia. Coconut water was identified as a promising new export product, and sold and marketed globally as a perfect substitute for energy drinks. Virgin coconut oil (VCO) also was touted as a possible cure for COVID-19 patients, and scientific evidence proved to decrease mild symptoms of the disease (Lim, 2021). According to Moreno et al. (2020), despite the growing coconut industry on the global scale, the coconut industry in the Philippines is not meeting increasing global demand. This provided another justification that the coconut processing industry requires more attention for sustainable development, and research efforts must be prioritized in this sector to further reach greater potential.

## 1. Quantitative Data Collection Procedure

The empirical testing of the hypotheses utilized a purposive sampling procedure, whereby targeted sets of respondents were asked for participation. Owners and top-level managers of medium-scale (based on asset size within the range of PhP 15 million to PhP 100 million) agro-processing firms in the Philippines, with businesses listed and registered under the Tradeline Philippines database, were the main intended respondents of the survey. Agro-processing firms considered in this study were exporting enterprises involved with processed or manufactured food using agricultural raw materials as the main input. There were 15 respondents sampled for pre-testing, and a total of 124 responses were obtained during the full-scale survey, but only 108 responses out of 124 were deemed usable for the data analysis. A 63.53 percent response rate can be noted for this study (based on the total 170 listed in the database).

## 2. Instrumentation

Export performance (EP) was measured using the nine-item questionnaire developed by Zou et al. (1998). Dynamic capability was measured using

the 14-item questionnaire developed by Kump et al. (2019). Entrepreneurial orientation (EO) was measured based on the questionnaire developed by Covin and Slevin (1989). Environmental hostility (EH) was measured using the questionnaire, composed of three items, developed by Khandwalla (1997) taken from the work of Robertson and Chetty (2000).

For the sake of uniformity and consistency in the type of data collected, a 7-point Likert scale format was used, as it has been applied by most studies and has been found to mitigate response bias better than a 5-point Likert scale (see Harzing et al., 2009; Harzing et al., 2013). To prevent common method bias, two constructs (EH and EO) were measured using a 7-point Semantic Differential scale format; this was to break the momentum or change the manner of responding (Podsakoff et al., 2003; Podsakoff et al., 2012), which is a procedural remedy for common method bias.

### 3. Qualitative Data Collection Procedure

The findings from the quantitative data analysis were more explained by qualitative data on how they manifested in practice. The qualitative data analysis technique used in this study was a combination of content and narrative analysis. The data collected through qualitative key-informant interviews were subjected to validation to ensure trustworthiness of the data results. The participants were provided a copy of the outcomes of the interview for their perusal; comments and suggestions were solicited from participants regarding the interpretation and explanation conducted by the researcher using the information collected. Ethical considerations involved asking politely for participation in the study, and by asking for an appointment for the interview. The objectives of the study and the projected study outcomes were also discussed as part of the invitation. An email was sent to the participant prior the interview (virtual and phone), which outlined the description of the study. In addition, a participant consent form was provided and was signed by the participant.

## V. Results and Discussion

### 1. Evaluation of the Measurement Model

The reliability of the measurement models was obtained by calculating the Cronbach Alpha and composite reliability (CR). All Cronbach alpha values and CR values were more than the recommended value of 0.7 (Taber 2018). Convergent validity was tested 1) through CFA (confirmatory factor analysis), whereby factor loadings of the indicators must have a value greater than 0.7 for main dimensions; 2) the composite reliability (CR) of the constructs must have a value greater than 0.6 (Tseng et al., 2006); and 3) the Average Variance Extracted (AVE) should be greater than 0.5 (Hair et al., 2010). Appendices Table A1 shows the values obtained from the reliability and convergent validity tests conducted for this study with acceptable and good results. Appendices Table A2 shows the discriminant validity test results, whereby the square-root of AVE (Fornell & Larcker, 1981) for the construct should be greater than the inter-construct correlations (Zait & Bertea, 2011). Discriminant validity was also assessed using the heterotrait-monotrait (HTMT) ratio of correlations (Henseler et al., 2015); all values were below the 0.90 threshold, establishing discriminant validity (see Appendices Table A3). All these procedures were based on the recommended steps of evaluating the measurement model using reflective measures (see Hair et al., 2020).

### 2. Evaluation of the Structural Model

The structural model was assessed based on the explanatory power ($R^2$), predictive relevance ($Q^2$), and the statistical significance of the path coefficients. Moreover, the model's out-of-sample predictive power was also assessed using the PLSpredict procedure (Shmueli et al., 2016). The collinearity among constructs of the model was assessed first to ensure that there is no collinearity issues that put bias in the regression results. The VIF value should be less than 5 to indicate acceptable noncollinearity issue in the model (Hair

et al., 2019). Seven out of nine VIF values were within the "ideal" value of less than 3; this shows that collinearity was generally not an issue in the study (see Table 1).

**Table 1.** Collinearity Test Results (VIF Values)

| | DC | EH | EO | EP |
|---|---|---|---|---|
| DC | | | | 3.182 |
| EH | 2.806 | | 2.102 | 2.851 |
| EO | 2.219 | | | 3.159 |
| EP | | | | |

Source: Author

$R^2$ is a measure of the model's explanatory power, which indicates the strength of the relationship (Shmueli & Koppius, 2011); in other words, it is the proportion of the variability in the dependent variables as explained by the model. According to Henseler et al. (2009) and Hair et al. (2011), values range from 0 to 1, with values greater than 0.75 considered "substantial," values less than 0.75 but greater than 0.5 are considered "moderate," and values between 0.5 and 0.25 are considered "weak." Values less than 0.25 have no predictive accuracy. Table 2 shows the $R^2$ and $R^2$-adjusted; moderate predictive accuracy was present in the structural model in explaining the endogenous variables.

**Table 2.** Predictive Accuracy Test Results

| | R Square | R Square Adjusted | Predictive Accuracy |
|---|---|---|---|
| DC | 0.686 | 0.677 | Moderate |
| EO | 0.549 | 0.541 | Moderate |
| EP | 0.717 | 0.706 | Moderate |

Source: Author

In addition to the $R^2$ (which is about explanatory power), researchers are also encouraged to evaluate the predictive relevance, $Q^2$, of the structural model (see Geisser 1975; Stone, 1974). These values were obtained through the PLS Blindfolding technique. According to Hair et al. (2019), the $Q^2$ values of the endogenous variables should be greater than zero to indicate predictive relevance. A value greater than 0.5 indicates a *large* predictive relevance, while a value between 0.25 and 0.5 shows *medium* predictive relevance. A value below 0.25 but greater than zero has *small* predictive relevance. Table 3 shows the $Q^2$ values from the data collected, and two endogenous

constructs (DC and EP) received *large* predictive relevance. EO received *medium* predictive relevance; in other words, the data points in the structural model were found to have *large* relevance in explaining DC and EP, and *medium* relevance in explaining EO.

**Table 3.** Predictive Relevance of the Structural Model ($Q^2$)

| | SSO | SSE | $Q^2$ (=1-SSE/SSO) |
|---|---|---|---|
| DC | 1512 | 729.484 | 0.518 (large) |
| EO | 972 | 572.312 | 0.411 (medium) |
| EP | 972 | 479.489 | 0.507 (large) |

Source: Author

The out-of-sample predictions of the model or its capability to predict future phenomenon using out-of-sample data can be tested from PLSpredict (Shmueli et al., 2016). To analyze the predictive power, the RMSE (root mean square error, a prediction error statistic) metric values in the PLS-SEM analysis must be less than to those found in the LM model (Shmueli et al., 2019). In comparing the values of RMSE from the PLS-SEM analysis to the RMSE values from the LM model, the data showed that only five items (out of 32 indicators) yielded RMSE values (from PLS-SEM) greater than the RMSE values from the LM model. It can be concluded that the structural model for this study has an overall *medium* predictive power. Because all items for EO were all below 0, it can be concluded that variables influencing EO have a *high* predictive power. As for DC and EP, the variables influencing these two endogenous variables have *medium* predictive power. Appendices Table B shows the PLSpredict outcome values of RMSE between PLS-SEM and the LM model.

The tests conducted and presented in the previous discussions were able to provide evidence of the structural model's explanatory ($R^2$ and $R^2$-adjusted, $Q^2$) and predictive power (PLSpredict and RMSE comparisons). In the succeeding discussion, the significance of the path coefficients was assessed, and was the final step in the quantitative data analysis. To test the significance of the path coefficients, the Consistent PLS Bootstrapping procedure was done, with 5000 subsamples generated.

Based on the results, there were three direct paths found to be significant (see Table 4) in the structural model: EH → EO, EO → DC, and DC → EP. As for the effect of EH on EO, according to Kreiser et al. (2019), environmental hostility influences entrepreneurial orientation, specifically the entrepreneurial behavior aspect of the firm. In other words, the firms would mostly enhance innovativeness and proactiveness. These behavioral changes were mainly caused by hostility (presence of threats and uncertainty) in the task environment. This was also consistent with the findings of Covin and Slevin (1989), and they concluded that entrepreneurial firms perform better than conservative firms in a hostile environment.

The significance of EO on DC was supported by Wiklund and Shepherd (2003), wherein EO influences the knowledge-based resources of a firm such as human resources and intellectual property. Recent work involving dynamic capabilities by Chien and Tsai (2021) showed that EO directly influenced the knowledge-based dynamic capabilities of fast-food chains in Taiwan, where EO encouraged knowledge contribution and sharing among employees. Aslam

**Table 4.** Direct Effects Analysis Among Export Performance Determinants

| Path | β | T-statistic | P-value | Confidence Interval | | Conclusion |
|---|---|---|---|---|---|---|
| | | | | 2.5% | 97.5% | |
| EH→EP | 0.023 | 0.225 | 0.821 | -0.174 | 0.230 | Not supported |
| EO→EP | 0.138 | 0.976 | 0.302 | -0.108 | 0.420 | Not supported |
| EH→DC | 0.119 | 1.036 | 0.304 | -0.081 | 0.360 | Not supported |
| EH→EO | 0.564 | 4.328 | 0.000 | 0.348 | 0.837 | Supported |
| EO→DC | 0.544 | 6.461 | 0.000 | 0.366 | 0.691 | Supported |
| DC→EP | 0.820 | 5.721 | 0.000 | 0.508 | 1.066 | Supported |

Source: Author

et al. (2020) based their working definition of dynamic capabilities on the contribution of Teece (2007); a significant contribution was provided by their study, wherein EO significantly influenced dynamic supply chain capabilities.

Monteiro et al. (2017), Monteiro et al. (2019), Wu and Wang (2007) showed the positive influence of DC on EP for highly technological firms. According to them, DC is responsible for transforming the resources available to the firm, and these resources come as information, financial resources, and relational resources that are converted by DC, which significantly influences a higher level of EP. Even if DC is defined differently in many empirical studies, the bottom-line concept of DC is the access, coordination, and use of information, knowledge, skills, and other resources that potentially enhance capabilities to sense, seize, and adapt or transform these resources, further leading to a higher level of firm (export) performance.

Mediation analysis was performed to further analyze the role of certain variables in the path (see Table 5). Three of the six hypothesized direct paths were found insignificant; however, by looking into the indirect effects, one can possibly find the reason behind the insignificance of those direct paths. The EH→EO→DC→EP ($\beta = 0.252$, $t = 3.268$, $p = .001$) path is significant. The paths EH→EO→DC ($\beta = 0.307$, $t = 3.634$, $p < .001$) and EO→DC→EP ($\beta = 0.447$, $t = 4.900$, $p < .001$), which are both significant, are within the EH→EO→DC→EP path, and those paths can be explained along with the overall discussion on the EH→EO→DC→EP path. A 55.78 percent VAF (variance accounted for) was obtained for this indirect path, and a possible explanation of this is that hostility effects can be more emphasized given the COVID-19 pandemic situation during the period of data collection, which is a time of uncertainty and resource limitation that further created threats to business operations. The demands for export products were hampered mainly by the price fluctuations of supplies, and price increases in shipment costs due to the limited availability of shipping containers. Therefore, the positive trade outlook caused by the pandemic (as evidenced from increased demands for agricultural, food, and health-related products) was an effect brought by environmental hostility during the pandemic which caused bottlenecks along the global supply chain, further leading to inflation.

**Table 5.** Indirect Path Analysis Results

| Path | Total Effect | | Direct effect | | Indirect Effects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | β | P-value | β | P-value | Indirect Path | β | T-value | P-value | Conf. Interval (2.5%;97.5%) | VAF |
| EH→EP | 0.450 | 0.002 | 0.023 | 0.821 | EH→EO→EP | 0.078 | 0.990 | 0.323 | -.062 | 0.245 | 17.33% |
| | | | | | EH→DC→EP | 0.097 | 0.944 | 0.345 | -.052 | 0.343 | 21.56% |
| | | | | | EH→EO→DC→EP | 0.252 | 3.268 | 0.001 | 0.123 | 0.431 | 55.78% |
| | | | | | Total Indirect Effect (EH→EP) | 0.427 | 3.390 | 0.001 | 0.205 | 0.697 | 94.89% |
| EO→EP | 0.584 | 0.000 | 0.138 | 0.302 | EO→DC→EP | 0.447 | 4.900 | 0.000 | 0.285 | 0.634 | 76.54% |
| EH→DC | 0.426 | 0.001 | 0.119 | 0.304 | EH→EO→DC | 0.307 | 3.634 | 0.000 | 0.160 | 0.491 | 72.07% |

Source: Author

In the EH→EO→DC→EP path, the direct effect of EH on EP was not significant (β = 0.023, t = 0.226, p = .821), but the total effect of EH on EP was significant (β = .450, t = 3.145, p = .001); this shows that a significant portion of the total effect comes from the indirect effect. Further analysis shows that the *indirect* effect of EH on EP, passing through EO and DC, was found to be significant (β = .252, t = 3.268, p = .001). The indirect path of EH on EP through EO was not significant (β = 0.078, t =.990, p = .323), and the indirect path of EH on EP through DC was also not significant (β = 0.097, t = .944, p = .345). Therefore, EO and DC fully mediates the effect of EH on EP. The other sub-paths, EH-EO-DC and EO-DC-EP, were found to be significant, which is consistent with the overall path of EH-EO-DC-EP; this means the effect of EH significantly travels toward influencing EO first, then to DC, and finally to EP.

Referring to literature findings, the EH-EO relationship according to Rosenbusch et al. (2013) showed that EH influences EO either in a negative or a positive way, depending on the context. In this study, EH influences EO in a positive way as it is believed that EH influences the entrepreneurial behavior of medium agro-processing firms, and the positive tangible effect of EO is further observed in the firm's export performance. However, this study also provided the missing link, DC, in explaining the relationship of EO and EP. Because EO can be defined as a set of entrepreneurial behaviors and managerial attitude toward risk (see Anderson et al., 2014), these are not enough to directly produce higher levels of export performance. DC comes into play whereby firms need the right skills, competencies, resources, and information to make things work continuously. EO serves as the strategic and entrepreneurial philosophy and orientation of the firm, and a high-level of EP cannot materialize by just having an entrepreneurial mindset or philosophy. High-level export performance requires that entrepreneurial behavior and attitude toward risk (EO) be executed properly with the right skills, knowledge, and capabilities (DC), given limited resources (EH). This evidence from the literature explains the significance of the EH-EO-DC-EP path in the structural model of this study.

## VI. Practical Manifestation of the Factors

This subchapter discusses how the export performance determinants considered for this

study are demonstrated in real life reflecting experiences during the Covid-19 pandemic based on qualitative data evidence gathered from in-depth interviews.

### 1. Level of Export Performance

The effect of the pandemic has provided both opportunities and constraints. The big opportunities provided a higher placement for putting a positive assessment on export performance, especially in terms of committed sales established over the period. Because of the pandemic, Company A and B reconfigured (lowered) sales targets due to limitations in product supply and finished goods distribution; hence, the sales and revenue targets were deemed feasible and achievable. With a surge in opportunities, such as increased global demands for their products, the sales targets were easily reached.

### 2. Environmental Hostility

During the start of the pandemic in 2020, Company A and B both struggled and temporarily stopped operations. When restrictions eased, uncertainty was observed from the irregular supply of raw materials, which caused lost opportunities to meet demand. They added that different policies and documentary requirements among local government units added to the slow movement of raw materials that hampered production. In addition, a shortage of containers made shipment costs very expensive.

### 3. Dynamic Capabilities

Both companies regularly evaluated performance in terms of sales, expenses/expenditures, assets, and liabilities; it is important to be aware of the current financial position and product performance in the business portfolio. They also make sure they are getting information from the market. They remain in touch with feedback from customers. Company A is committed to continuously investing in studying other product and process innovations. They upgrade processes to what is currently available.

Both Company A and B emphasized that technical experience and a strong community involvement was a key to success and continued existence. They cannot survive without the help of stakeholders and shareholders. Both Company A and B acknowledge that collaboration is the key to success. What is most important to them is to keep the coconut industry flourishing and prevent the industry from its downfall.

### 4. Entrepreneurial Orientation

Both companies need to innovate processes and constantly look for ways to develop their products to ensure quality. Both companies are experimenting with venturing into other business-innovations (such as skincare and vegan coconut meat production). This also highlighted the proactiveness of the company and its attitude toward risk-taking; according to them, proactiveness is being open to opportunities, and venturing into new products and new markets.

They emphasized, however, that not all opportunities must be seized as some opportunities can be more harmful in the long run. There is a need to evaluate the promise of a certain opportunity, and that opportunity must have long-range benefits for the company. Company B shared that the opportunities they took were within the bounds of their technical expertise. They shared that being innovative does not necessarily need to be very different and unique; they added that innovativeness needs to come from a strong foundation, and that the innovation should serve a bigger purpose.

### 5. Synthesis

To summarize the qualitative findings, a hostile environment, characterized by limited resources, inflation, and threats to discontinue business operations due to a disabled value chain, can force the enterprise to be mindful of its orientation or strategic posture. This hostility results in the strategic orientation of a firm to be mindful of its choices on innovation, opportunities, and

risks. Given the limitations brought by a hostile environment, enterprises need to adjust and adapt their business philosophies by proactively selecting opportunities that are within their current expertise (resources), and within their strategic goals and targets. This entrepreneurial mindset that has been created influences them to do well in executing those plans by making use of information, knowledge, skills, and other capabilities. The dynamic capabilities that result from their entrepreneurial behaviors are responsible for converting these strategic plans into tangible outcomes reflected in above-average export performance.

## VII. Conclusion

This study contributed to the understanding of some related constructs that had not yet been explored in-depth in previous literature relating export performance and environmental hostility: more specifically, in the agro-processing industry, and in the context of the COVID-19 pandemic. There are three key theoretical contributions of this study; 1) the presence of a multi-step mediation of entrepreneurial orientation and dynamic capabilities in understanding the influence of environmental hostility on export performance; 2) the presence of the mediation of dynamic capabilities in understanding the influence of entrepreneurial orientation on export performance; and 3) the mediation effects of dynamic capabilities on the influence of entrepreneurial orientation on export performance. The findings of this study provided the justification that the influence of environmental hostility and entrepreneurial orientation on export performance is not direct and straightforward due to the presence of mediators. The findings of this study reinforced the justification of RBV that explains the significance of entrepreneurial orientation and dynamic capabilities, considered internal resources of the firm, in influencing export performance. More importantly, dynamic capabilities were established in this study to be a major antecedent to export performance, which provides a better understanding on how external (environmental hostility) and internal (EO) factors influence export performance. The findings of this study also reinforced the justification of contingency theory in providing theoretical support in explaining the significant influence of a hostile environment on a firm's export performance, thus strengthening the knowledge that firms respond accordingly and appropriately in the context provided to them by the external environment. In this case, the influence of a hostile environment on export performance was mediated by EO and dynamic capabilities.

In this study, a better understanding was found, whereby the dynamic capabilities of a firm become the missing link to ensure above-average export performance. An entrepreneurial orientation (EO) alone does not directly influence performance; rather, it takes an indirect influence toward dynamic capabilities. EO, however, becomes the factor responsible for transforming the negative effects of environmental hostility into positive outcomes, as reflected in dynamic capabilities and export performance. Without EO, negative effects from by environmental hostility may not effectively influence dynamic capabilities and export performance, and this might be the reason behind why some firms cannot survive a hostile situation.

### 1. Implications

The COVID-19 pandemic has opened opportunities for exporting due to bottlenecks along the global supply chain, in which the hostile environment caused by the pandemic due to travel restrictions, closed borders, and quarantine policies resulted in inflation among certain commodities. It is most important to focus on how to effectively and continuously execute production and operations that fully meet high demand for certain agro-processed goods. This can only be done when the organization is skilled, informed, disciplined, consistent, and technically good at what they are doing. These are what characterizes dynamic capabilities as a full mediator between EH-EO and EP. Dynamic capability is something

the organization can continuously improve through experience, additional training and education, information, and exposure to general stakeholders that can provide ideas and networking connections on how to better implement business operations.

In a hostile environment, organizations are recommended to focus on market niches they can possibly penetrate abroad. It is suggested that a vigilant attitude toward being proactive and innovative must be observed, especially for opportunities for collaboration, partnership, and possible outsourcing services. A major takeaway is that not all opportunities need to be seized, and it is most important to resort to opportunities that can be strategic.

## 2. Limitations

The model developed in this study was fitted using data gathered from medium-scale exporting agro-processing firms in the Philippines. The model can provide a different outcome when fitted using data coming from a different industry or business sector, or from a different country. However, it is assured that the methodology used in this study is repeatable, and the reliability-validity of the measurement models can be guaranteed since PLS-SEM is robust enough to yield valid results given these limitations.

The literature review for this paper focused on the field of strategic management and international business research. There are many other factors that can potentially influence export performance, especially when other fields of study are considered. These other fields of study were beyond the scope of this study, but these were recognized as a limitation, and at the same time provided room for the possible improvement of the model in future studies.

## References

Aaby, N., & Slater, S. F. (1989). Management influences on export performance: A review of the empirical literature 1978-1988. *International Marketing Review*, *6*(4), 7-26. https://doi.org/10.1108/eum0000000001516

Abbey, E., & Adu-Danso, E. (2022). What factors hamper innovation amongst SMEs in Kenya?. *Innovation and Development*, 1-30. https://doi.org/10.1080/2157930x.2022.2030890

Acosta, A. S., Crespo, Á. H., & Agudo, J. C. (2018). Effect of market orientation, network capability and entrepreneurial orientation on international performance of small and medium enterprises (SMEs). *International Business Review*, *27*(6), 1128-1140. https://doi.org/10.1016/j.ibusrev.2018.04.004

Adebanjo, D., Teh, P. L., & Ahmed, P. K. (2017). The impact of supply chain relationships and integration on innovative capabilities and manufacturing performance: The perspective of rapidly developing countries. *International Journal of Production Research*, *56*(4), 1708-1721. https://doi.org/10.1080/00207543.2017.1366083

Ahmed, F. U., & Brennan, L. (2019). Performance determinants of early internationalizing firms: The role of international entrepreneurial orientation. *Journal of International Entrepreneurship*, *17*(3), 389-424. https://doi.org/10.1007/s10843-019-00250-7

Ahn, S. H. (2017). Relationship between foreign agent operations and performance in SME exporters. *Journal of Korea Trade*, *21*(4), 274-291. https://doi.org/10.1108/jkt-05-2017-0052

Akbari, M., Danesh, M., Dolatshah, P., & Khosravani, A. (2019). Moderating international environment hostility between international corporate entrepreneurship and Halal food industry. *Journal of Agricultural Science & Technology, 21*(3), 545-560.

Akpan, E. E., Johnny, E., & Sylva, W. (2021). Dynamic capabilities and organizational resilience of manufacturing firms in Nigeria. *Vision: The Journal of Business Perspective*, *26*(1), 48-64. https://doi.org/10.1177/0972262920984545

Alinasab, J., Mirahmadi, S. M. R., Ghorbani, H., & Caputo, F. (2022). Managing SMEs' internationalisation process. A Delphi approach for identifying antecedent factors. *International Journal of Managerial and Financial Accounting*, *14*(1), 1-19. https://doi.org/10.1504/ijmfa.2022.120934

Ambaw, D. T., & Thangavelu, S. M. (2022). Industrial subsidies and impact on exports of trading partners: Case of China. *Review of Development Economics*. https://doi.org/10.1111/rode.12878

Anderson, B. S., Kreiser, P. M., Kuratko, D. F., Hornsby, J. S., & Eshima, Y. (2014). Reconceptualizing entrepreneurial orientation. *Strategic Management Journal*, *36*(10), 1579-1596. https://doi.org/10.1002/smj.2298

Anwar, M., Clauss, T., & Issah, W. B. (2021). Entrepreneurial orientation and new venture performance in emerging markets: The mediating role of opportunity recognition. *Review of Managerial Science*, *16*(3), 769-796. https://doi.org/10.1007/s11846-021-00457-w

Aslam, H., Blome, C., Roscoe, S., & Azhar, T. M. (2020). Determining the antecedents of dynamic supply chain capabilities. *Supply Chain Management: An International Journal, 24*(4), 427-442. https://doi.org/10.1108/SCM-02-2019-0074

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99-120. https://doi.org/10.1177/014920639101700108

Barney, J. B., Ketchen, D. J., & Wright, M. (2021). Bold voices and new opportunities: An expanded research agenda for the resource-based view. *Journal of Management*, *47*(7), 1677-1683. https://doi.org/10.1177/01492063211014276

Battaglia, D., & Neirotti, P. (2020). Dealing with the tensions between innovation and internationalization in SMEs: A dynamic capability view. *Journal of Small Business Management*, *60*(2), 379-419. https://doi.org/10.1080/00472778.2020.1711635

Belkahla, W., & Triki, A. (2011). Customer knowledge enabled innovation capability: Proposing a measurement scale. *Journal of Knowledge Management*, *15*(4), 648-674. https://doi.org/10.1108/13673271111152009

Bhandari, K. R., Ranta, M., & Salo, J. (2022). The resource-based view, stakeholder capitalism, ESG, and sustainable competitive advantage: The firm's embeddedness into ecology, society, and governance. *Business Strategy and the Environment*, *31*(4), 1525-1537. https://doi.org/10.1002/bse.2967

Bhupendra, K. V., & Sangle, S. (2015). What drives successful implementation of pollution prevention and cleaner technology strategy? The role of innovative capability. *Journal of Environmental Management*, *155*, 184-192. https://doi.org/10.1016/j.jenvman.2015.03.032

Blessley, M., & Mudambi, S. M. (2022). A trade war and a pandemic: Disruption and resilience in the food bank supply chain. *Industrial Marketing Management*, *102*, 58-73. https://doi.org/10.1016/j.indmarman.2022.01.002

Breugst, N., Patzelt, H., & Shepherd, D. A. (2020). When is effort contagious in new venture management teams? Understanding the contingencies of social motivation theory. *Journal of Management Studies*, *57*(8), 1556-1588. https://doi.org/10.1111/joms.12546

Calik, E., Calisir, F., & Cetinguc, B. (2017). A scale development for innovation capability measurement. *Journal of Advanced Management Science*, *5*(2), 69-76. https://doi.org/10.18178/joams.5.2.69-76

Castle, M. (2021). COVID-19, trade policy and agriculture in New Zealand: From 'environmental vandals' to 'economic heroes'? *Political Science*, *73*(3), 215-233. https://doi.org/10.1080/00323187.2022.2057336

Chang, C. W., & Huang, H. C. (2022). How global mindset drives innovation and exporting performance: The roles of relational and bricolage capabilities. *Journal of Business & Industrial Marketing*. https://doi.org/10.1108/jbim-06-2021-0320

Chassé, S., & Courrent, J. M. (2017b). Linking owner-managers' personal sustainability behaviors and

corporate practices in SMEs: The moderating roles of perceived advantages and environmental hostility. *Business Ethics: A European Review*, *27*(2), 127-143. https://doi.org/10.1111/beer.12176

Che, Y., Liu, W., Zhang, Y., & Zhao, L. (2020). China's exports during the global COVID-19 pandemic. *Frontiers of Economics in China*, *15*(4), 541-574. https://doi.org/10.3868/s060-011-020-0023-7

Chen, J., Sousa, C. M., & Xinming, H. (2016). The determinants of export performance: A review of the literature 2006-2014. *International Marketing Review*, *33*(5), 626-670. https://doi.org/10.1108/imr-10-2015-0212

Chen, J., Zhang, B., Zhan, W., Sharma, P., Budhwar, P., & Tan, H. (2022). Demystifying the non-linear effect of high commitment work systems (HCWS) on firms' strategic intention of exploratory innovation: An extended resource-based view. *Technovation*, *116*, 102499. https://doi.org/10.1016/j.technovation.2022.102499

Chien, S. Y., & Tsai, C. H. (2021). Entrepreneurial orientation, learning, and store performance of restaurant: The role of knowledge-based dynamic capabilities. *Journal of Hospitality and Tourism Management*, *46*, 384-392. https://doi.org/10.1016/j.jhtm.2021.01.007

Chih, Y. Y., Hsiao, C. Y. L., Zolghadr, A., & Naderpajouh, N. (2022). Resilience of organizations in the construction industry in the face of COVID-19 disturbances: Dynamic capabilities perspective. *Journal of Management in Engineering*, *38*(2). https://doi.org/10.1061/(asce)me.1943-5479.0001014

Cho, C., Kim, B., & Oh, S. (2022). Effects of the entrepreneurial strategic orientation of social enterprises on organizational effectiveness: Case of South Korea. *Administrative Sciences*, *12*(1), 19. https://doi.org/10.3390/admsci12010019

Chryssochoidis, G., Dousios, D., & Tzokas, N. (2016). Small firm adaptive capability, competitive strategy, and performance outcomes: Competing mediation vs. Moderation perspectives. *Strategic Change*, *25*(4), 441-466. https://doi.org/10.1002/jsc.2073

Correia, R. J., Teixeira, M. S., & Dias, J. G. (2021). Dynamic capabilities: Antecedents and implications for firms' performance. *International Journal of Productivity and Performance Management*. https://doi.org/10.1108/ijppm-12-2019-0587

Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, *10*(1), 75-87. https://doi.org/10.1002/smj.4250100107

Creswell, J. W., & Creswell, D. J. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE.

Dele-Ijagbulu, O., Moos, M., & Eresia-Eke, C. (2020). The relationship between environmental hostility and entrepreneurial orientation of small businesses. *Journal of Entrepreneurship and Innovation in Emerging Economies*, *6*(2), 347-362. https://doi.org/10.1177/2393957520931332

Dele-Ijagbulu, O. J., Moos, M., & Eresia-Eke, C. (2021). Modelling the relationships between the business environment, entrepreneurial orientation and employment growth amongst small, medium and micro-enterprises in South Africa. *South African Journal of Business Management*, *52*(1). https://doi.org/10.4102/sajbm.v52i1.2404

Dovbischuk, I. (2022). Innovation-oriented dynamic capabilities of logistics service providers, dynamic resilience and firm performance during the COVID-19 pandemic. *The International Journal of Logistics Management*, *33*(2), 499-519. https://doi.org/10.1108/ijlm-01-2021-0059

Duncan, R. B. (1972). Characteristics of organizational environments and perceived environmental uncertainty. *Administrative Science Quarterly*, 313-327. https://doi.org/10.2307/2392145

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they?. *Strategic Management Journal*, *21*(10-11), 1105-1121.

Eshima, Y., & Anderson, B. S. (2016). Firm growth, adaptive capability, and entrepreneurial orientation. *Strategic Management Journal*, *38*(3), 770-779. https://doi.org/10.1002/smj.2532

Faroque, A. R., Kuivalainen, O., Ahmed, J. U., Rahman, M., Roy, H., Ali, M. Y., et al. (2021). Performance implications of export assistance: The mediating role of export entrepreneurship. *International Marketing Review*, *38*(6), 1370-1399. https://doi.org/10.1108/imr-07-2020-0141

Fei, S., Ni, J., & Santini, G. (2020). Local food systems and COVID-19: An insight from China. *Resources, Conservation and Recycling*, *162*, 105022. https://doi.org/10.1016/j.resconrec.2020.105022

Fornell, C. G., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50. https://doi.org/10.2307/3151312

França, A. S., & Rua, O. L. (2016). Influence of entrepreneurial orientation and absorptive capacities in export performance. *Tourism & Management Studies*, *12*(1), 196-202. https://doi.org/10.18089/tms.2016.12121

Fuentelsaz, L., González, C., & da Silva, J. A. (2021). Entrepreneurial orientation and start-up performance: A configurational Approach. *Entrepreneurship Research Journal*. https://doi.org/10.1515/erj-2020-0236

García-Sánchez, I., Martín-Moreno, J., Khan, S. A., & Hussain, N. (2020). Socio-emotional wealth and corporate responses to environmental hostility: Are family firms more stakeholder oriented? *Business Strategy and the Environment*, *30*(2), 1003-1018. https://doi.org/10.1002/bse.2666

Geisser, S. (1975). The predictive sample reuse method with applications. *Journal of the American Statistical Association*, *70*(350), 320-328. https://doi.org/10.1080/01621459.1975.10479865

George, G. (2005). Slack resources and the performance of privately held firms. *Academy of Management Journal*, *48*(4), 661-676. https://doi.org/10.2307/20159685

González-Moreno, N., Ruiz-Palomino, P., & Sáez-Martínez, F. J. (2019). Can CEOs' corporate social responsibility orientation improve firms' cooperation in international scenarios?. *Sustainability*, *11*(24), 6936. https://doi.org/10.3390/su11246936

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate data analysis* (7th ed.). Pearson Prentice Hall.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *The Journal of Marketing Theory and Practice, 19*(2), 139-152. https://doi.org/10.2753/MTP1069-6679190202

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, *109*, 101-110. https://doi.org/10.1016/j.jbusres.2019.11.069

Harel, R. (2021). The impact of COVID-19 on small businesses' performance and innovation. *Global Business Review*, 1-22. https://doi.org/10.1177/09721509211039145

Harzing, A. W., Baldueza, J., Barner-Rasmussen, W., Barzantny, C., Canabal, A., Davila, A. et al. (2009). Rating versus ranking: What is the best way to reduce response and language bias in cross-national research?. *International Business Review*, *18*(4), 417-432. https://doi.org/10.1016/j.ibusrev.2009.03.001

Harzing, A. W., Reiche, B. S., & Pudelko, M. (2013). Challenges in international survey research: A review with illustrations and suggested solutions for best practice. *European Journal of International Management*, *7*(1), 112-134. https://doi.org/10.1504/ejim.2013.052090

Hassani, A., & Mosconi, E. (2022). Social media analytics, competitive intelligence, and dynamic capabilities in manufacturing SMEs. *Technological Forecasting and Social Change*, *175*, 121416. https://doi.org/10.1016/j.techfore.2021.121416

Helfat, C. E. (1997). Know-how and asset complementarity and dynamic capability accumulation: The case of R&D. *Strategic Management Journal*, *18*(5), 339-360.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115-135. https://doi.org/10.1007/s11747-014-0403-8

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, *20*, 277-319. https://doi.org/10.1108/S1474-7979(2009)0000020014

Hoque, M. T., Ahammad, M. F., Tzokas, N., Tarba, S., & Nath, P. (2022). Eyes open and hands on: Market knowledge and marketing capabilities in export markets. *International Marketing Review*. https://doi.org/10.1108/imr-01-2021-0003

Hossain, K., Soon Lee, K. C., Abdul Ghani Azmi, I. B., Idris, A. B., Alam, M. N., Rahman, M. A. et al. (2022). Impact of innovativeness, risk-taking, and proactiveness on export performance in a developing country: Evidence of qualitative study. *RAUSP Management Journal*, *57*(2), 165-181. https://doi.org/10.1108/rausp-01-2021-0002

Hosseini, M., Dadfar, H., & Brege, S. (2018). Firm-level entrepreneurship and international performance: A simultaneous examination of orientation and action. *Journal of International Entrepreneurship*, *16*(3), 338-368. https://doi.org/10.1007/s10843-018-0235-6

Imran, M., Aziz, A. B., & Hamid, S. N. B. A. (2017). The relationship between entrepreneurial orientation, business networks orientation, export market orientation and SME export performance: A proposed research framework. *International Journal of Academic Research in Business and Social Sciences*, *7*(10). https://doi.org/10.6007/ijarbss/v7-i10/3372

Ismail, M. D., & Isa, M. A. M. (2021). Export performance of SMEs in emerging markets: The role of market orientation, learning and trust. *The South East Asian Journal of Management*, *15*(1), 112-128. https://doi.org/10.21002/seam.v15i1.13072

Jafari-Sadeghi, V., Amoozad Mahdiraji, H., Bresciani, S., & Pellicelli, A. C. (2021). Context-specific micro-foundations and successful SME internationalisation in emerging markets: A mixed-method analysis of managerial resources and dynamic capabilities. *Journal of Business Research*, *134*, 352-364. https://doi.org/10.1016/j.jbusres.2021.05.027

Jalali, S. H. (2012). Environmental determinants, entrepreneurial orientation and export performance: Empirical evidence from Iran. *Serbian Journal of Management*, *7*(2), 245-255. https://doi.org/10.5937/sjm7-1687

Jankelová, N., & Joniaková, Z. (2021). The role of innovative work behaviour and knowledge-based dynamic capabilities in increasing the innovative performance of agricultural enterprises. *Agricultural Economics (Zemědělská Ekonomika)*, *67*(9), 363-372. https://doi.org/10.17221/151/2021-agricecon

Jiang, L., Liu, S., & Zhang, G. (2022). Digital trade barriers and export performance: Evidence from China. *Southern Economic Journal*, *88*(4), 1401-1430. https://doi.org/10.1002/soej.12572

Jiang, X., Liu, H., Fey, C., & Jiang, F. (2018). Entrepreneurial orientation, network resource acquisition, and firm performance: A network approach. *Journal of Business Research*, *87*, 46-57. https://doi.org/10.1016/j.jbusres.2018.02.021

Jiao, H., Wei, J., & Cui, Y. (2010). An empirical study on paths to develop dynamic capabilities: From the perspectives of entrepreneurial orientation and organizational learning. *Frontiers of Literary Studies in China*, *4*(1), 47-72. https://doi.org/10.1007/s11782-010-0003-5

Kalubanga, M., & Gudergan, S. (2022). The impact of dynamic capabilities in disrupted supply chains: The role of turbulence and dependence. *Industrial Marketing Management*, *103*, 154-169. https://doi.org/10.1016/j.indmarman.2022.03.005

Khandwalla, P. N. (1977). Some top management styles, their context and performance. *Organisation and Administrative Sciences, 7*(4), 21-51.

Khattak, M. S., & Ullah, R. (2021). The role of entrepreneurial orientation in tangible and intangible resource acquisition and new venture growth. *Managerial and Decision Economics*, *42*(6), 1619-1637. https://doi.org/10.1002/mde.3331

Kim, K., & Lim, G. (2022). International dynamic marketing capabilities of emerging-market small business on e-commerce. *Journal of Theoretical and Applied Electronic Commerce Research*, *17*(1), 199-211.

https://doi.org/10.3390/jtaer17010010

Krammer, S. M. (2022). Navigating the new normal: Which firms have adapted better to the COVID-19 disruption? *Technovation*, *110*, 102368. https://doi.org/10.1016/j.technovation.2021.102368

Kreiser, P. M., Anderson, B. S., Kuratko, D. F., & Marino, L. D. (2019). Entrepreneurial orientation and environmental hostility: A threat rigidity perspective. *Entrepreneurship Theory and Practice*, *44*(6), 1174-1198. https://doi.org/10.1177/1042258719891389

Kump, B., Engelmann, A., Kessler, A., & Schweiger, C. (2019). Toward a dynamic capabilities scale: Measuring organizational sensing, seizing, and transforming capacities. *Industrial and Corporate Change*, *28*(5), 1149-1172. https://doi.org/10.1093/icc/dty054

Lages, L. F., Silva, G., & Styles, C. (2009). Relationship capabilities, quality, and innovation as determinants of export performance. *Journal of International Marketing*, *17*(4), 47-70. https://doi.org/10.1509/jimk.17.4.47

Lefebvre, E., & Lefebvre, L. A. (2002). Innovative capabilities as determinants of export performance and behaviour: A longitudinal study of manufacturing SMEs. In A. Kleinknecht, & P. Mohnen (Eds.). *Innovation and Firm Performance* (pp. 281-309). Palgrave Macmillan. https://doi.org/10.1057/9780230595880_12

Li, D. Y., & Liu, J. (2014). Dynamic capabilities, environmental dynamism, and competitive advantage: Evidence from China. *Journal of Business Research*, *67*(1), 2793-2799. https://doi.org/10.1016/j.jbusres.2012.08.007

Liao, Z., & Long, S. (2018). Can interfirm trust improve firms' cooperation on environmental innovation? The moderating role of environmental hostility. *Business Strategy and the Environment*, *28*(1), 198-205. https://doi.org/10.1002/bse.2249

Lim, E., & Kim, D. (2019). Entrepreneurial orientation and performance in South Korea: The mediating roles of dynamic capabilities and corporate entrepreneurship. *Entrepreneurship Research Journal*, *10*(3). https://doi.org/10.1515/erj-2016-0075

Lim, G. Y. (2021, June 8). *Philippines COVID-19 trial: Virgin coconut oil effective in reducing inflammation in suspected and probable infection cases*. Nutraingredients-Asia.Com. https://www.nutraingredients-asia.com/Article/2021/06/08/Philippines-COVID-19-trial-Virgin-coconut-oil-effective-in-reducing-inflammation-in-suspected-and-probable-infection-cases?utm_source=copyright&utm_medium=OnSite&utm_%20campaign=copyright

Lu, Y., Zhou, L., Bruton, G., & Li, W. (2009). Capabilities as a mediator linking resources and the international performance of entrepreneurial firms in an emerging economy. *Journal of International Business Studies*, *41*(3), 419-436. https://doi.org/10.1057/jibs.2009.73

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, *21*(1), 135-172. https://doi.org/10.2307/258632

Martín, O. M., Chetty, S., & Bai, W. (2022). Foreign market entry knowledge and international performance: The mediating role of international market selection and network capability. *Journal of World Business*, *57*(2), 101266. https://doi.org/10.1016/j.jwb.2021.101266

Martins, I., & Rialp, A. (2011). Entrepreneurial orientation, environmental hostility and SMEs profitability: A contingency approach. *SSRN Electronic Journal*, *13*(2), 67-88. https://doi.org/10.2139/ssrn.2162483

Mataveli, M., Ayala, J. C., & Gil, A. J. (2022). Towards an analysis of the determinants of exports in Brazil: The perspective of exporting companies. *Baltic Journal of Management*, *17*(2), 141-157. https://doi.org/10.1108/bjm-05-2021-0174

Michaelis, T. L., Scheaf, D. J., Carr, J. C., & Pollack, J. M. (2022). An agentic perspective of resourcefulness: Self-reliant and joint resourcefulness behaviors within the entrepreneurship process. *Journal of Business Venturing*, *37*(1), 106083. https://doi.org/10.1016/j.jbusvent.2020.106083

Miles, M. P., Arnold, D. R., & Thompson, D. L. (2011). The interrelationship between environmental hostility

and entrepreneurial orientation. *Journal of Applied Business Research (JABR)*, *9*(4), 12. https://doi.org/10.19030/jabr.v9i4.5984

Miller, D. (2011). Miller (1983) revisited: A reflection on EO research and some suggestions for the future. *Entrepreneurship Theory and Practice*, *35*(5), 873-894. https://doi.org/10.1111/j.1540-6520.2011.00457.x

Mintzberg, H. (1973). Strategy-making in three modes. *California Management Review*, *16*(2), 44-53. https://doi.org/10.2307/41164491

Monteiro, A. P., Soares, A. M., & Rua, O. L. (2017). Entrepreneurial orientation and export performance: The mediating effect of organisational resources and dynamic capabilities. *Journal for International Business and Entrepreneurship Development*, *10*(1), 3-20. https://doi.org/10.1504/jibed.2017.082749

Monteiro, A. P., Soares, A. M., & Rua, O. L. (2019). Linking intangible resources and entrepreneurial orientation to export performance: The mediating effect of dynamic capabilities. *Journal of Innovation & Knowledge*, *4*(3), 179-187. https://doi.org/10.1016/j.jik.2019.04.001

Moreno, M. L., Kuwornu, J. K. M., & Szabo, S. (2020). Overview and constraints of the coconut supply chain in the Philippines. *International Journal of Fruit Science*, *20*(sup2), S524-S541. https://doi.org/10.1080/15538362.2020.1746727

Navarro-García, A., Arenas-Gaitán, J., Javier Rondán-Cataluña, F., & Rey-Moreno, M. (2016). Global model of export performance: Moderator role of export department. *Journal of Business Research*, *69*(5), 1880-1886. https://doi.org/10.1016/j.jbusres.2015.10.073

Navarro-García, A., Schmidt, A. C. M., & Rey-Moreno, M. (2015). Antecedents and consequences of export entrepreneurship. *Journal of Business Research*, *68*(7), 1532-1538. https://doi.org/10.1016/j.jbusres.2015.01.047

Onwe, C. C., Ogbo, A., & Ameh, A. A. (2020). Entrepreneurial orientation and small firm performance: The moderating role of environmental hostility. *Entrepreneurial Business and Economics Review*, *8*(4), 67-84. https://doi.org/10.15678/eber.2020.080404

Pacheco, L., Lobo, C., & Maldonado, I. (2022). Do ISO certifications enhance internationalization? The case of Portuguese industrial SMEs. *Sustainability*, *14*(3), 1335. https://doi.org/10.3390/su14031335

Pastelakos, E., Theodoraki, C., & Catanzaro, A. (2022). The role of innovation and internationalization support in small- and medium-sized enterprises' export performance. *European Management Review*. https://doi.org/10.1111/emre.12513

Penrose, E. (1959). *The theory of the growth of the firm*. Oxford University Press.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, *63*, 539-569. https://doi.org/10.1146/annurev-psych-120710-100452

Prieto-Sánchez, C. J., & Merino, F. (2022). Prevalence of the born-global phenomenon in different countries: An integrated perspective. *Multinational Business Review*. https://doi.org/10.1108/mbr-09-2021-0120

Randhawa, K., Wilden, R., & Gudergan, S. (2021). How to innovate toward an ambidextrous business model? The role of dynamic capabilities and market orientation. *Journal of Business Research*, *130*, 618-634. https://doi.org/10.1016/j.jbusres.2020.05.046

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, *33*(3), 761-787. https://doi.org/10.1111%2Fj.1540-6520.2009.00308.x

Reimann, C. K., Carvalho, F. M. P. D. O., & Duarte, M. P. (2022). Adaptive marketing capabilities, market orientation, and international performance: The moderation effect of competitive intensity. *Journal of*

*Business & Industrial Marketing*. https://doi.org/10.1108/jbim-08-2021-0391

Ribau, C. P., Moreira, A. C., & Raposo, M. (2017). SMEs innovation capabilities and export performance: An entrepreneurial orientation view. *Journal of Business Economics and Management*, *18*(5), 920-934. https://doi.org/10.3846/16111699.2017.1352534

Rodríguez-Serrano, M. Á., & Martín-Armario, E. (2019). Born-global SMEs, performance, and dynamic absorptive capacity: Evidence from Spanish firms. *Journal of Small Business Management*, *57*(2), 298-326. https://doi.org/10.1111/jsbm.12319

Robertson, C., & Chetty, S. K. (2000). A contingency-based approach to understanding export performance. *International Business Review*, *9*(2), 211-235. https://doi.org/10.1016/S0969-5931(99)00037-2

Rosenbusch, N., Rauch, A., & Bausch, A. (2013). The mediating role of entrepreneurial orientation in the task environment–performance relationship: A meta-analysis. *Journal of Management*, *39*(3), 633-659. https://doi.org/10.1177/0149206311425612

Rua, O. L. (2018). From intangible resources to export performance: Exploring the mediating effect of absorptive capabilities and innovation. *Review of International Business and Strategy*, *28*(3/4), 373-394. https://doi.org/10.1108/ribs-02-2018-0012

Sadeghi, A., Rose, E. L., & Madsen, T. K. (2021). Perceived export performance: A contingent measurement approach. *Journal of International Marketing*, *29*(3), 63-84. https://doi.org/10.1177/1069031x20973663

Sciascia, S., Naldi, L., & Hunter, E. (2006). Market orientation as determinant of entrepreneurship: An empirical investigation on SMEs. *The International Entrepreneurship and Management Journal*, *2*(1), 21-38. https://doi.org/10.1007/s11365-006-7087-6

Shariff, M. N. M., Shamsuddin, J., & Kadir, M. N. A. (2019). The impact of strategic orientation on performance of retail SMEs by structural equation model evaluations. *Industrial Engineering & Management Systems*, *18*(3), 383-394. https://doi.org/10.7232/iems.2019.18.3.383

Shmueli, G., & Koppius, O. R. (2011). Predictive analytics in information systems research. *MIS Quarterly, 35*(3), 553-572. https://doi.org/10.2307/23042796

Shmueli, G., Ray, S., Estrada, J. M. V., & Chatla, S. B. (2016). The elephant in the room: Predictive performance of PLS models. *Journal of Business Research*, *69*(10), 4552-4564. https://doi.org/10.1016/j.jbusres.2016.03.049

Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J. H., Ting, H., Vaithilingam, S. et al. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*, *53*(11), 2322-2347. https://doi.org/10.1108/EJM-02-2019-0189

Simsek, Z., Veiga, J. F., & Lubatkin, M. H. (2007). The impact of managerial environmental perceptions on corporate entrepreneurship: Towards understanding discretionary slack's pivotal role. *Journal of Management Studies*, *44*(8), 1398-1424. https://doi.org/10.1111/j.1467-6486.2007.00714.x

Sousa, C. M., Martínez-López, F. J., & Coelho, F. (2008). The determinants of export performance: A review of the research in the literature between 1998 and 2005. *International Journal of Management Reviews*, *10*(4), 343-374. https://doi.org/10.1111/j.1468-2370.2008.00232.x

Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. *Journal of the Royal Statistical Society, Series B (Methodological), 36* (2), 111-147.

Strobl, A., Bauer, F., & Matzler, K. (2020). The impact of industry-wide and target market environmental hostility on entrepreneurial leadership in mergers and acquisitions. *Journal of World Business*, *55*(2), 100931. https://doi.org/10.1016/j.jwb.2018.03.002

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, *48*(6), 1273-1296. https://doi.org/10.1007/s11165-016-9602-2

Tacio, H. D. (2019, July 18). *Coconut: Major Export Crop of Filipino Farmers*. Philippine Coconut Authority.

https://pca.gov.ph/index.php/10-news/234-coconut-major-export-crop-of-filipino-farmers

Tandrayen-Ragoobur, V. (2022). The innovation and exports interplay across Africa: Does business environment matter?. *The Journal of International Trade & Economic Development*, 1-31. https://doi.org/10.1080/09638199.2022.2051588

Tang, Z., & Hull, C. (2012). An investigation of entrepreneurial orientation, perceived environmental hostility, and strategy application among Chinese SMEs. *Journal of Small Business Management*, *50*(1), 132-158. https://doi.org/10.1111/j.1540-627X.2011.00347.x

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, *28*(13), 1319-1350. https://doi.org/10.1002/smj.640

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509-533.

Torkkeli, L., Puumalainen, K., Saarenketo, S., & Kuivalainen, O. (2012). The effect of network competence and environmental hostility on the internationalization of SMEs. *Journal of International Entrepreneurship*, *10*(1), 25-49. https://doi.org/10.1007/s10843-011-0083-0

Tseng, W. T., Dörnyei, Z., & Schmitt, N. (2006). A new approach to assessing strategic learning: The case of self-regulation in vocabulary acquisition. *Applied Linguistics*, *27*(1), 78-102. https://doi.org/10.1093/applin/ami046

Unal, B., & Donthu, N. (2014). Role of absorptive capabilities in outsourcing the headquarters selling task in the United States. *Industrial Marketing Management*, *43*(6), 1079-1084. https://doi.org/10.1016/j.indmarman.2014.05.021

Urban, B. (2018). Effectuation and opportunity recognition in the renewable energy sector in South Africa: A focus on environmental dynamism and hostility. *Journal of Developmental Entrepreneurship*, *23*(02), 1850010. https://doi.org/10.1142/s1084946718500103

Urban, B., & Mutendadzamera, K. (2021). Social capital leading to innovation: Understanding moderating effects of the environment in the Zimbabwean small and medium enterprise context. *Journal of Enterprising Communities: People and Places in the Global Economy*. https://doi.org/10.1108/jec-01-2021-0010

Van de Ven, A. H., & Drazin, R. (1984). *The concept of fit in contingency theory*. Defense Technical Information Center. https://apps.dtic.mil/sti/pdfs/ADA152603.pdf

Vij, S., & Bedi, H. S. (2012). Relationship between entrepreneurial orientation and business performance: A review of literature. *The IUP Journal of Business Strategy*, *9*(3), 17-31.

Voss, G. B., Sirdeshmukh, D., & Voss, Z. G. (2008). The effects of slack resources and environmental threat on product exploration and exploitation. *Academy of Management Journal*, *51*(1), 147-164. https://doi.org/10.2307/20159499

Wales, W. J. (2016). Entrepreneurial orientation: A review and synthesis of promising research directions. *International Small Business Journal*, *34*(1), 3-15. https://doi.org/10.1177/0266242615613840

Wales, W. J., Gupta, V. K., & Mousa, F. T. (2013). Empirical research on entrepreneurial orientation: An assessment and suggestions for future research. *International Small Business Journal*, *31*(4), 357-383. https://doi.org/10.1177/0266242611418261

Wang, Y. (2016). Environmental dynamism, trust and dynamic capabilities of family businesses. *International Journal of Entrepreneurial Behavior & Research*, *22*(5), 643-670. https://doi.org/10.1108/IJEBR-11-2015-0234

Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, *9*(1), 31-51. https://doi.org/10.1111/j.1468-2370.2007.00201.x

Wiklund, J., & Shepherd, D. (2005). Entrepreneurial orientation and small business performance: A configurational approach. *Journal of Business Venturing*, *20*(1), 71-91. https://doi.org/10.1016/

j.jbusvent.2004.01.001

Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, *24*(13), 1307-1314. https://doi.org/10.1002/smj.360

Wu, L. Y., & Wang, C. J. (2007). Transforming resources to improve performance of technology-based firms: A Taiwanese Empirical Study. *Journal of Engineering and Technology Management*, *24*(3), 251-261. https://doi.org/10.1016/j.jengtecman.2007.05.002

Xue, R., Qian, G., Qian, Z., & Li, L. (2019). Environmental turmoil and firms' core structure dynamism: The moderating role of strategic alliances. *Journal of Business & Industrial Marketing*, *34*(7), 1619-1638. https://doi.org/10.1108/jbim-11-2018-0330

Yin, M., Hughes, M., & Hu, Q. (2021). Entrepreneurial orientation and new venture resource acquisition: Why context matters. *Asia Pacific Journal of Management*, *38*(4), 1369-1398. https://doi.org/10.1007/s10490-020-09718-w

Yoshikuni, A. C. (2021). Effects on corporate performance through ISS-enabled strategy-making on dynamic and improvisational capabilities. *International Journal of Productivity and Performance Management*. https://doi.org/10.1108/ijppm-03-2021-0177

Zahoor, N., & Al-Tabbaa, O. (2021). Post-entry internationalization speed of SMEs: The role of relational mechanisms and foreign market knowledge. *International Business Review*, *30*(1), 101761. https://doi.org/10.1016/j.ibusrev.2020.101761

Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda. *Journal of Management Studies*, *43*(4), 917-955. https://doi.org/10.1111/j.1467-6486.2006.00616.x

Zaiţ, A., & Bertea, P. S. P. E. (2011). Methods for testing discriminant validity. *Management & Marketing Journal*, *9*(2), 217-224.

Zhang, D. D. (2009). Absorptive capability and its mediating effect on the learning and market orientations' influences on performance. *International Journal of Technology Marketing*, *4*(2-3), 275. https://doi.org/10.1504/ijtmkt.2009.026874

Zhou, L., Barnes, B. R., & Lu, Y. (2009). Entrepreneurial proclivity, capability upgrading and performance advantage of newness among international new ventures. *Journal of International Business Studies*, *41*(5), 882-905. https://doi.org/10.1057/jibs.2009.87

Zhu, W., Su, S., & Shou, Z. (2017). Social ties and firm performance: The mediating effect of adaptive capability and supplier opportunism. *Journal of Business Research*, *78*, 226-232. https://doi.org/10.1016/j.jbusres.2016.12.018

Zou, S., & Stan, S. (1998). The determinants of export performance: A review of the empirical literature between 1987 and 1997. *International Marketing Review*, *15*(5), 333-356. https://doi.org/10.1108/02651339810236290

Zou, S., Taylor, C. R., & Osland, G. E. (1998). The EXPERF scale: A cross-national generalized export performance measure. *Journal of international Marketing*, *6*(3), 37-58. https://digitalcommons.butler.edu/cob_papers/242

# Appendices

**Table A1.** Outer Loadings, Reliability and Convergent Validity Results

| Items | Loadings | Cronbach Alpha | Composite Reliability | AVE |
|---|---|---|---|---|
| DC01 | 0.887 | | | |
| DC02 | 0.957 | | | |
| DC03 | 0.837 | | | |
| DC04 | 0.773 | | | |
| DC05 | 0.914 | | | |
| DC06 | 0.903 | 0.980 | 0.980 | 0.776 |
| DC07 | 0.861 | | | |
| DC08 | 0.917 | | | |
| DC09 | 0.900 | | | |
| DC10 | 0.875 | | | |
| DC11 | 0.880 | | | |
| DC12 | 0.859 | | | |
| DC12 | 0.859 | | | |
| DC13 | 0.849 | | | |
| DC14 | 0.902 | | | |
| EH1 | 0.855 | 0.885 | 0.886 | 0.722 |
| EH2 | 0.912 | | | |
| EH3 | 0.777 | | | |
| EO1 | 0.918 | 0.975 | 0.974 | 0.809 |
| EO2 | 0.903 | | | |
| EO3 | 0.885 | | | |
| EO4 | 0.927 | | | |
| EO5 | 0.916 | | | |
| EO6 | 0.916 | | | |
| EO7 | 0.868 | | | |
| EO8 | 0.871 | | | |
| EO9 | 0.889 | | | |
| EP1 | 0.889 | 0.961 | 0.962 | 0.736 |
| EP2 | 0.903 | | | |
| EP3 | 0.834 | | | |
| EP4 | 0.836 | | | |
| EP5 | 0.743 | | | |
| EP6 | 0.819 | | | |
| EP7 | 0.868 | | | |
| EP8 | 0.888 | | | |
| EP9 | 0.929 | | | |

**Table A2.** Fornell and Larcker Criterion.

| | DC | EH | EO | EP |
|---|---|---|---|---|
| DC | 0.881 | | | |
| EH | 0.697 | 0.849 | | |
| EO | 0.790 | 0.725 | 0.899 | |
| EP | 0.837 | 0.580 | 0.703 | 0.858 |

Note: Values in italic-bold represent the square-root of AVE.

**Table A3.** HTMT Ratio of Correlations

| | DC | EH | EO | EP |
|---|---|---|---|---|
| DC | | | | |
| EH | 0.694 | | | |
| EO | 0.789 | 0.725 | | |
| EP | 0.836 | 0.578 | 0.702 | |

**Table B.** PLSpredict Outcome Values between PLS-SEM Analysis and the LM Model

| | PLS-SEM RMSE | LM RMSE | Difference (RMSEPLS-SEM - RMSELM) | Difference less than 0? | Predictive Power |
|---|---|---|---|---|---|
| DC10 | 1.059 | 1.085 | -0.026 | Yes | Medium |
| DC08 | 1.147 | 1.132 | 0.015 | No | |
| DC03 | 1.126 | 1.212 | -0.086 | Yes | |
| DC14 | 1.051 | 1.107 | -0.056 | Yes | |
| DC09 | 1.038 | 1.049 | -0.011 | Yes | |
| DC04 | 1.135 | 1.172 | -0.037 | Yes | |
| DC06 | 1.036 | 1.074 | -0.038 | Yes | |
| DC07 | 1.225 | 1.265 | -0.040 | Yes | |
| DC01 | 1.120 | 1.151 | -0.031 | Yes | |
| DC05 | 1.141 | 1.179 | -0.038 | Yes | |
| DC11 | 1.070 | 1.102 | -0.032 | Yes | |
| DC12 | 1.068 | 1.109 | -0.041 | Yes | |
| DC13 | 1.151 | 1.149 | 0.002 | No | |
| DC02 | 1.109 | 1.141 | -0.032 | Yes | |
| EO7 | 1.110 | 1.171 | -0.061 | Yes | High |
| EO9 | 1.169 | 1.239 | -0.070 | Yes | |
| EO6 | 1.176 | 1.211 | -0.035 | Yes | |
| EO3 | 1.190 | 1.253 | -0.063 | Yes | |
| EO5 | 1.124 | 1.184 | -0.060 | Yes | |
| EO1 | 1.192 | 1.272 | -0.080 | Yes | |
| EO8 | 1.199 | 1.259 | -0.060 | Yes | |
| EO4 | 1.088 | 1.149 | -0.061 | Yes | |
| EO2 | 1.229 | 1.323 | -0.094 | Yes | |
| EP3 | 1.288 | 1.328 | -0.040 | Yes | Medium |
| EP9 | 1.191 | 1.217 | -0.026 | Yes | |
| EP7 | 1.183 | 1.180 | 0.003 | No | |
| EP2 | 1.297 | 1.312 | -0.015 | Yes | |
| EP6 | 1.240 | 1.264 | -0.024 | Yes | |
| EP1 | 1.181 | 1.211 | -0.030 | Yes | |
| EP8 | 1.255 | 1.244 | 0.011 | No | |
| EP5 | 1.115 | 1.092 | 0.023 | No | |
| EP4 | 1.206 | 1.242 | -0.036 | Yes | |
| EP7 | 1.183 | 1.180 | 0.003 | No | |

ISSN 1946-5130 (Print), ISSN 2470-4733 (Online)
http://dx.doi.org/10.20294/jgbt.2022.18.4.169

The Journal of Global Business and Trade

Journal of Global Business and Trade

https://www.pfw.edu/jgbt

# Integrated Marketing Communication Exposure, Attitude, Decision-Making Process and Purchasing Behavior:
## A Case Study of Cricket Food Products in Thailand*

**Mana Patchimnan[a], Chama Inson[b]**, Banthoon Phankaew[c]**

[a]*School of Communication Arts, University of the Thai Chamber of Commerce, Thailand*
[b]*Department of Entomology, Faculty of Agriculture, Kasetsart University, Thailand*
[c]*Faculty of Journalism and Mass Communication, Thammasat University, Thailand*

*Received 16 June 2022, Revised 8 July 2022, Accepted 8 August 2022*

**ABSTRACT**

**Purpose –** The purpose of this paper is to gain more understanding of cricket food consumer behaviors and the effects of the marketing communication campaign toward purchasing.
**Design/Methodology/Approach –** This study is based on the relationship among four variables, integrated marketing communication (IMC) exposure, consumer attitude, decision-making process, and purchasing behavior, toward cricket food products in Thailand by applying the Kotler's Black Box Model. Questionnaires were distributed online via email and the Line chat application, and were completed by 401 Thai people, aged 18 to 65, who had either eaten or not eaten cricket food prior.
**Findings –** This study indicates the relationship between IMC exposure and attitude toward cricket food products., the attitude and decision-making process, decision-making process and purchasing behavior, and IMC exposure and purchasing behavior.
**Research Implications –** In management, this study implies type of consumer and how to plan marketing communication strategies for future food entrepreneurs and marketers.

***Keywords:*** attitude, consumer behavior, cricket, exposure, future food, integrated marketing communication
***JEL Classifications:*** M31, M37, L66

* *The author would like to thank "the Kasetsart University Research and Development Institute (KURDI) (Grant No. FF(KU) 7.64)" for supporting us throughout the research process.*

** *Corresponding author, E-mail: chama_inson@hotmail.com*

## I. Introduction

An increasing world population challenges global food security in terms of affordability, availability, quality, and safety. Crickets are edible insects that can evolve into a staple food type because they are an environmentally-friendly protein source, or a so-called future food. Meticulous Market Research (2021) established that the edible insects market is expected to grow 26.5% from 2020 to 2027 to reach $4.63 billion US dollars by 2027. There is an increasing demand for cricket-based products, such as protein powders, protein bars, and snacks. Thailand has a more advanced cricket farming system than other countries in ASEAN, with more than 20,000 cricket farms recorded (Department of Agriculture Extension, 2021).

The development of cricket farming can create jobs and incomes for farmers, cricket food processors, and cricket product exporters, and creates added value for the country's economy. A cricket farm and food processing factory in Sukothai province generates an income of about $600,000 US dollars per year (Ministry of Agriculture and Cooperatives, 2021). However, the cricket food business has grown slowly because of the marketing, communication, and business models that did not support market expansion, including a marketing mix and marketing communication for the business value chain from upstream to downstream.

In Thailand, cricket is considered a cultural food that is commonly found as a raw ingredient for cooking in the northeastern, northern, and central regions.The Thai government sees the potential for cricket food developing in to a substantial food source for the future and secures food security and environmentally-friendly production processes (Office of International Trade Promotion, Sydney, Department of International Trade Promotion, 2020). There are still many people that dare not to eat cricket food products. Moreover, it was found that the significant problems in the cricket food business are consumer attitudes, perceived behavioral control, subjective norms, food neophobia, food format from cricket protein, and consumer acceptance (Mongkon & Leejoeiwara, 2021). Therefore, the growth of the cricket food market is essential in understanding the demand side of the consumers, both in terms of stimuli, external factors including marketing mix and IMC and internal factors, like consumer attitudes, because both can affect the consumer decision making process and purchasing behavior (Kotler at el., 2004). By applying the consumer behavior of Kotler's Black Box model, this study aims to generate greater understanding of how marketing communication could affect consumer attitude and purchase intent toward cricket-based food. The results would benefit cricket farms and cricket food entrepreneurs in how to plan marketing communication and eventually generate more sales.

## II. Theoretical Concept and Framework

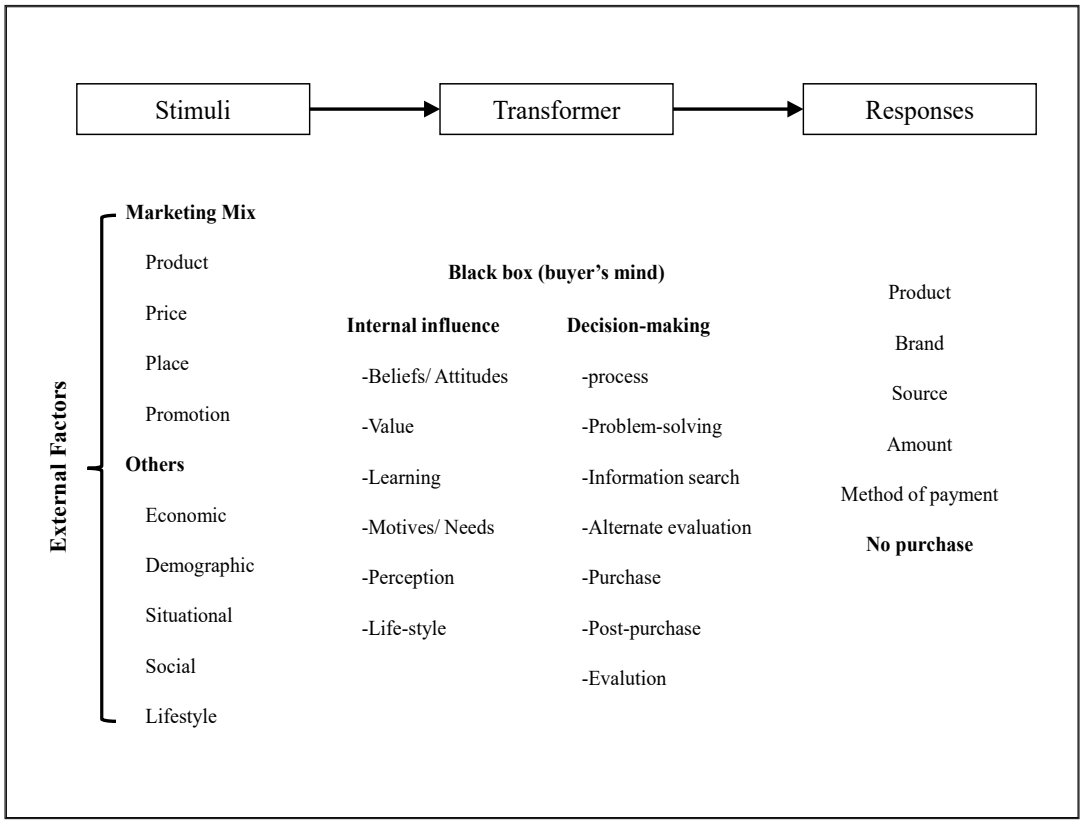
### 1. Consumer Behavior

This research is based on Kotler's Black Box Model (Kotler et al., 2004), which explains how external and internal factors affect decision-making and purchasing behaviors. The marketing mix, including IMC, which is a part of a promotion, involves stimuli that are input into the consumer mind, and expectation to purchase a product is the output. However, there is a process before purchasing, which is called the "black box". This black box process is related to the buyer's mind, including internal factors and decision-making. Attitude, one of the internal factors, is the central variable in this research because of the interview results and reviewed literature. Therefore, finding the relationship among external factors, internal factors, decision-making process, and purchasing behavior would support the cricket food IMC plan development.

Pambo (2018) established the assessment of attitudes and motivations of food consumers toward edible insects. In the case of cricket flour bread, it was found that it caused more positive

emotions in consumers than the consumption of crickets that had not been processed. Households from the west are unaccustomed to eating insects. Therefore, they were incentivized through processing the crickets. Consumption of crickets meets four goals: good health, longevity, happiness, and food safety. In addition, the study also reflected the market potential of processed products from edible insects, and revealed a negative attitude toward the sensory characteristics of edible insect food. The unappealing form of insects is an obstacle to consumer acceptance. However, this can be dealt with by providing appropriate marketing information and campaigns to promote the consumption of edible insects. Therefore, processed cricket products need to be shown to consumers to allow them to see, feel, think about, and taste to get them more accustomed. The Decision-making process also affects purchasing behavior. Hunjra et al. (2011) established that decision-making styles for purchasing a product, such as brand consciousness, perfectionism, product quality, variety seeking and novelty-fashion, influence consumer behavior. Frymier and Nadler (2017) established that although the traditional consumer behavior model states that attitude causes purchasing behavior, direct experience can also form attitude. This means behavior can cause an attitude to form. In the case of food, marketing make efforts to have consumers try the food initially. Afterward, they may have a positive attitude about the product, leading to future buying behavior.

**Fig. 1.** Kotler's Black Box Model




Source: Kotler et al. (2004).

## 2. Integrated Marketing Communication (IMC)

Kotler and Armstrong (2008) established that integrated marketing communication (IMC) is a specific mix of advertising, personal selling, sales promotion, public relations, and direct marketing used to communicate customer value persuasively and build customer relationships. Damarjati et al. (2016) established that IMC directly influenced the decision-making process. Therefore, IMC starts from the consumer-centric view of modern marketing, and its primary goal is affecting purchasing behavior, and implicitly, its structural processes: perception, attitude, information, motivation, and purchasing behavior (Mihart, 2012).

## 3. Cricket Consumption

Between 150 and 200 species of edible insect are consumed in Southeast Asia. Insects are an excellent source of protein, amino acids, vitamins, and minerals (Van Huis et al., 2013). Thailand is a country that has a long and rich history of consuming insects across several regions. About two hundred different kinds of insects are consumed in many cities around the country (Hanboonsong et al., 2013). Most insects are wild-caught for non-commercial home consumption, with a few species being farmed. Recently, insect food was sold in supermarkets as a ready-to-eat processed product.

The National Bureau of Agricultural Commodity and Food Standards (MSC) indicates that the global edible insect market has grown at a rate of 23.8 percent between 2018 and 2022. The market is expected to grow to 37,900 million baht in 2023, and Thailand expects to own 3,000 baht. Thailand has about 20,000 cricket farms and a production capacity of 20,000 tons in fresh, frozen, fried, and roasted types. Insects are processed to be flour mixes, bakery goods, and pasta. Popular processed insect products are insect powders, protein shakes, protein bars, and beverages. Insect powder has the biggest market at about 24 percent of the total in the international market (National Bureau of Agricultural Commodity and Food Standards, 2022)

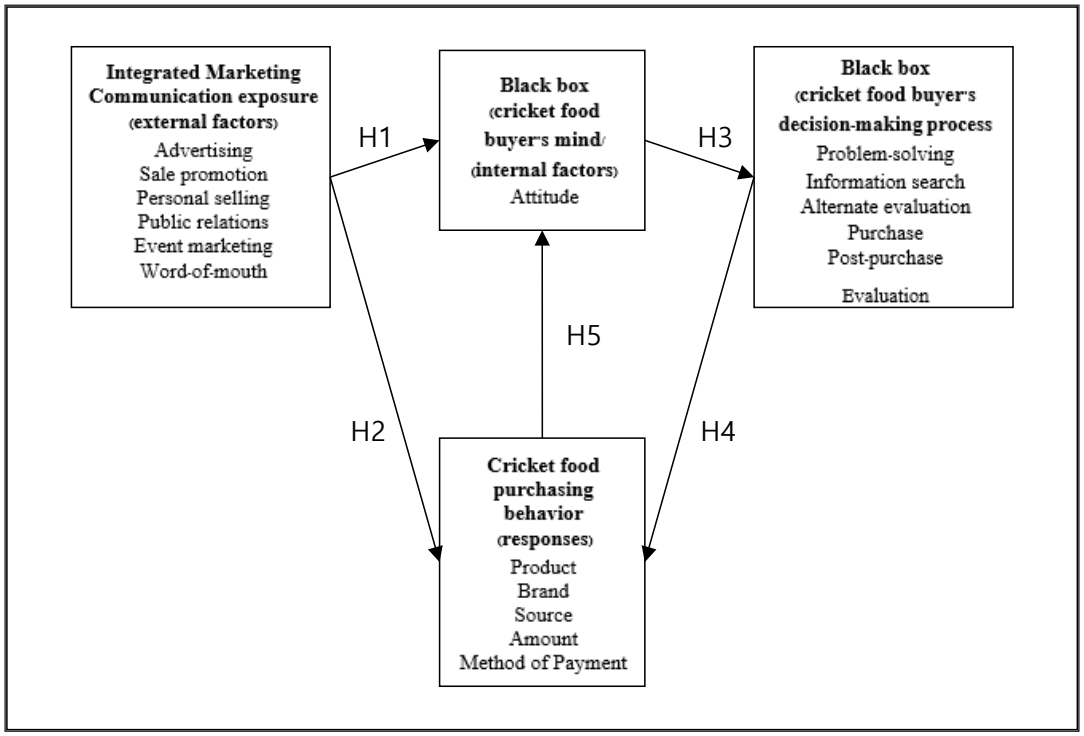
## 4. Consumer Attitude and Purchasing Decision Making

Pambo (2018) established an assessment of the attitudes and motivations of food consumers from edible insects. In the case of cricket flour bread, it was found that it caused more positive emotions in consumers than the consumption of crickets that had not been processed. Households in the west are unaccustomed to eating insects. Therefore, they were incentivized through processing. Consumption of crickets meets four goals: good health, longevity, happiness, and food safety. In addition, the study also reflected the market potential of processed products from edible insects, and also revealed the negative attitude of the sensory characteristics of edible insect food. The unappealing form of insects is an obstacle to consumer acceptance. However, this can be dealt with by providing appropriate marketing information and through campaigns to promote the consumption of edible insects. Therefore, processed cricket products need to be shown to consumers to allow them to see, feel, think about, and taste them to become more accustomed to them.

The Office of International Trade Promotion in Sydney, of the Department of International Trade Promotion (2020), established insect consumption in Australia. The purchasing decision making of insects is not as popular as conventional food, and it will take time to adjust the attitude of consumers. By promoting the awareness and understanding of the positive benefits of eating insects, this attitude is being changed.

From Kotler's Black Box model and previous studies, the research builds on the Black Box model in the context of cricket food and the future food industry. The future food industry currently lacks research and needs more understanding in marketing and consumer behavior. This research mainly focuses on the relationship among the four variables, which are IMC and attitude, and their correlations with decision-making processes and purchasing behavior. The research framework, variables, sub-variables, and hypotheses are presented in Fig. 2.

**Fig. 2.** Research Framework and Hypotheses




### 5. Hypotheses

**H1:** IMC exposure correlates with attitude toward cricket food products.
**H2:** IMC exposure correlates with cricket food purchasing behavior.
**H3:** Attitude toward cricket food products correlates with the decision-making process of purchasing a cricket food product.
**H4:** The decision-making process of purchasing cricket food products correlates with cricket food purchasing behavior.
H5: Cricket food purchasing behavior correlates with attitude toward cricket food product.

## III. Research Methodology

The study employed a quantitative research survey research, as detailed below.

### 1. Population and Sample

The population of this research refers to Thai people aged 18 to 65, residing in Thailand from March to April 2021. According to the Department of Provincial Administration, in 2020, the number of Thai people of this age range was 44,598,353 (Official Statistics Registration Systems Thailand, 2021). The sample size was determined using Taro Yamane's formula 1973 (Yamane, 1973) for the precision of ±5%; therefore, a minimum of 400 respondents were required. Using a multistage sampling technique categorizing respondents evenly by region, cricket food consuming experience, and age, online questionnaires were distributed online via email and the Line chat application. There were 435 respondents. However, only 401 samples had completed answers after the data cleaning process. All respondents signed the consent form to provide their information for this research by not showing their personal information publicly.

### 2. Instrument and Variables

An online questionnaire was used to collect data from the respondents. The research conducted content validity by having the questionnaire reviewed by three experts, including two marketing communication professionals and one food scientist specializing in future food. The researcher also conducted face validity by asking the respondents in the test-round run to feedback if the questionnaire measures the target variables. As a result, the researcher revised the questionnaire according to the recommendations and the final questionnaires include questions as below.

a) Demographic Data (gender, age, education, marital status, income, hobbies, province of residence)
b) IMC Exposure. The respondents were asked to rate the frequency of IMC exposure ranging from 1 = strongly disagree to 5 = strongly agree on a 5-point Likert scale. Twenty-three statements were included (four on advertisement, four on sales promotion, four on personal selling, five on public relations, three on event marketing, and three on word-of-mouth marketing). The researcher has tested the reliability, and Cronbach's alpha score was 0.957.
c) Consumer Attitude toward Cricket Food. Respondents were asked to rate their attitude toward cricket food from 1 = strongly disagree to 5 = strongly agree on a 5-point Likert scale. The researcher applied the interview results to generate a set of questions on attitude. After the validity test, twenty statements were included (eight on nutrition and benefits, five on liking and preference, and seven on availability of cricket food). The researcher tested the reliability, and Cronbach's alpha was 0.895.
d) Decision-Making Process. According to the Black Box model, the decision-making process of purchasing cricket food products was measured from problem recognition, information search, alternate evaluation, purchase, post-purchase, and evaluation. Previously used with nominal and ordinal scales, the result was then recoded to an interval scale to analyze correlation with other variables.
e) Purchase Characteristics. According to the Black Box model, the type of product, brand, source, amount, and the payment method was asked to measure the purchasing behaviors (response). Previously used with nominal and ordinal scale, the result was then recoded to an interval scale to analyze correlation with other variables.

### 3. Data Collection

Questionnaires were distributed through various online channels from March to April 2021. This data collection mode was the only available option due to the nationwide lockdown policy due to the COVID-19 pandemic. Before administering questionnaires, respondents were informed of the purpose, instructions, data collection methods, and research benefits. There was no physical or psychological harm inflicted on the subjects. The participants consented to all research procedures, and were free to withdraw any time.

### 4. Data Analysis

Data analysis employed both descriptive and inferential statistics. Frequencies, percentages, means, and standard deviations were used to describe the data. Pearson correlations were used to analyze the relationship among IMC exposure, consumer attitude, decision-making process, and purchasing behavior.

## IV. Findings

Descriptive statistics consisting of means and standard deviations were used to explain each variable, and Pearson's product correlation was used to determine the correlation coefficient between two variables to test hypotheses. The results are shown in the tables below.

Table 1 established Likert scales that were used to measure the IMC exposure of respondents. It

was found that the IMC tools that respondents were exposed to the most were personal selling ($\bar{X}$= 4.27), public relations ($\bar{X}$= 4.11), and event marketing ($\bar{X}$= 4.10). The least common IMC tool respondents were exposed to was advertising ($\bar{X}$= 3.98).

**Table 1.** Mean and Standard Deviation of IMC Exposure

| IMC Exposure | Mean | Std. Deviation |
|---|---|---|
| Personal Selling | 4.27 | 0.86 |
| Public Relations | 4.11 | 0.87 |
| Event Marketing | 4.10 | 0.93 |
| Word-of-mouth | 4.08 | 0.91 |
| Sales Promotion | 4.02 | 0.93 |
| Advertising | 3.98 | 0.99 |
| IMC (overall) | 4.09 | 0.83 |

Note: The total number of respondents was 401.

**Table 2**. Mean and Standard Deviation of Attitude toward Cricket Food Products

| Attitude toward Cricket Food Product | Mean | Std. Deviation |
|---|---|---|
| Crickets have more protein than other types of meat such as pork, beef, fish, etc. | 4.16 | 0.99 |
| Crickets can be produced as animal food. | 4.13 | 0.92 |
| Crickets are snacks. | 4.08 | 0.84 |
| Crickets are an inexpensive source of protein. | 4.08 | 0.89 |
| Cricket is one of the local eating cultures. | 4.06 | 1.02 |
| Crickets are processed food for cooking. | 4.05 | 1.01 |
| Crickets are more readily available for purchase than other insects. | 4.05 | 0.97 |
| The consumption of crickets is beneficial to the body. | 3.99 | 0.96 |
| Crickets are a reserve protein food for the future world. | 3.97 | 0.95 |
| Cricket consumption is worth comparing prices to nutritional benefits. | 3.95 | 0.99 |
| Crickets are more nutritious than other insects. | 3.94 | 0.96 |
| The consumption of crickets is pleasurable. | 3.88 | 1.12 |
| Families are part of the decision to consume crickets. | 3.87 | 1.23 |
| Crickets are healthy food. | 3.82 | 0.99 |
| Crickets are more accessible to eat than other insects. | 3.80 | 1.16 |
| Crickets are tastier than other insects. | 3.77 | 1.08 |
| Crickets can be substituted for meat. | 3.72 | 1.01 |
| Advertising media is one of the factors that make you consume cricket. | 3.57 | 1.32 |
| The consumption of crickets is clean. | 2.37 | 1.17 |
| Crickets have a pleasing shape. | 2.21 | 1.19 |

Note: The total number of respondents was 401.

Table 2 established Likert scales that were used to measure attitude toward the cricket food product. The highest scored responses were that crickets have more protein than other types of meat such as pork, beef, fish, and so on ($\bar{X}$ = 4.16), crickets can be produced as animal food ($\bar{X}$ = 4.13), crickets are snacks, and crickets are an inexpensive source of protein ($\bar{X}$ = 4.08). The lowest score was that crickets have a pleasing shape ($\bar{X}$ = 2.21).

**Table 3.** Correlation Coefficients between IMC Exposure, Attitude toward Cricket Food Products, and Purchasing Behavior

| Variables | Attitude toward Cricket Food Products | Cricket Purchasing Behavior |
|---|---|---|
| Advertising | .600** | .195** |
| Sales Promotion | .650** | .269** |
| Personal Selling | .572** | .207** |
| Public Relations | .637** | .196** |
| Event Marketing | .625** | .231** |
| Word-of-mouth | .650** | .211** |
| IMC (overall) | .685** | .240** |

Note: **statistically significant at the .01 level.

**H1:** IMC exposure correlates with attitude toward cricket food products.

Table 3 established Pearson's product correlation, was used to determine the correlation coefficient, and found that IMC exposure positively correlates with attitude toward cricket food products. The more consumers are exposed to IMC tools, the higher the attitude toward cricket food products. Every IMC tool, advertising, sales promotion, personal selling, public relations, event marketing, and word-of-mouth, also positively correlated with attitude toward cricket food products. Therefore, Hypothesis 1 (H1) was accepted (statistically significant at the .01 level).

**H2:** IMC exposure correlates with cricket food purchasing behavior.

Table 3 established Pearson's product correlation was used to determine the correlation coefficient, and found that IMC exposure positively correlated with cricket food purchasing behavior. This means the higher the exposure of consumers to IMC tools, the more cricket food purchasing behavior happens, including the frequency of purchasing cricket, various types of cricket purchasing, buying from various brands, buying from many sources, and buying with various types of payment. Every IMC tool, advertising, sales promotion, personal selling, public relations, event marketing, and word-of-mouth, also positively correlated with cricket food purchasing behavior. Therefore, Hypothesis 2 (H2) was accepted (statistically significant at the .01 level).

**H3:** Attitude toward cricket food products correlates with the decision-making process of purchasing a cricket food product.

**Table 4.** Correlation Coefficients between Attitude toward Cricket Food Products, Decision-Making Process of Purchasing Cricket Food Products, and Cricket Food Purchasing Behavior

| Variables | Attitude toward Cricket Food Product | Decision-making Process of Purchasing a Cricket Food Product | Cricket Food Purchasing Behavior |
|---|---|---|---|
| Attitude toward Cricket Food Product | 1 | .464** | .183** |
| Decision-making Process for Purchasing Cricket Food Products | .464** | 1 | 486** |
| Cricket Food Purchasing Behavior | .183** | 486** | 1 |

Note: **statistically significant at the .01 level.

Table 4 established Pearson's product correlation, was used to determine the correlation coefficient, and found that attitude toward cricket food products positively correlates with the decision-making process of purchasing cricket food products. This means the greater the consumers' positive attitude toward cricket food products, the more they are likely to go through the decision-making process, such as searching for more information about the products, looking for product choices, visiting a physical place or online shop to buy, or review products via social media. Therefore, Hypothesis 3 (H3) was accepted (statistically significant at the .01 level).

**H4:** The decision-making process of purchasing cricket food products correlates with cricket food purchasing behavior.

Table 4 established the Pearson's product correlation that was used to determine the correlation coefficient, and found that the decision-making process of purchasing cricket food products had a positive correlation with purchasing behavior. This means that the more consumers go through the decision-making process, the more they purchase cricket food by amount or type. Therefore, Hypothesis 4 (H4) was accepted (statistically significant at the .01 level).

**H5:** Cricket food purchasing behavior correlates with attitude toward cricket food products.

Table 4 established the Pearson's product correlation that was used to determine the correlation coefficient, and found that cricket food purchasing behavior positively correlates with attitude toward the cricket food product. The more consumers purchase cricket by amount or type, the greater the positive attitude they have toward cricket food products. Therefore, Hypothesis 5 (H5) was accepted (statistically significant at the .01 level).

## V. Discussion and Suggestions

This research significantly indicates the relationship between IMC exposure and attitude toward cricket food products. Mihart (2012) established that changing IMC strategy such as packaging, product sampling, and marketing activities can lead to perception, learning, and attitude. Unexpectedly, results show the IMC tool that consumers have the most exposure to is personal selling. The strength of a salesperson is the explanation of more details and benefits of a product. Liu et al. (2019) established edible insect consumption in China. They found that insect phobia, feelings of disgust, knowledge level, and social demographic factors such as age, household size, household income, and region (Northern or Southern China) were the main factors influencing purchase decisions.

Moreover, concerns about food safety and shape of insects have negative impacts on consumption frequency. Educating consumers to increase knowledge of edible insects increases the probability of changing their attitude and purchasing cricket. Therefore, with a strength in educating consumers, personal selling can be an effective tool to generate more understanding and persuade consumers to try cricket food.

IMC exposure also has a positive correlation with cricket food purchasing behavior. Like Western countries, Sogari et al. (2019) established that the consumption of edible insects will depend on availability in the market, communication, and marketing. La Barbera et al. (2020) established that the negative attitude of entomophagy toward eating insects is disgust, and the positive attitude is an interest to try novel experiences and eat novel food. Similar to Menozzi et al. (2017), who studied Western consumers and established that Western consumer beliefs about eating insect-based food products positively affects health and the environment significantly affected attitudes and intention. The main barriers preventing the consumption of food products containing insect flour were the sense of disgust arising from seeing insects. Iqbal et al. (2021) established that individual health consciousness and food safety concerns were positively related to intentions to purchasing organic food products through consumer involvement. Therefore, IMC planners or cricket food entrepreneurs have both opportunities to find and educate a group of potential entomophagy and reduce the challenges of a negative mindset.

Afterward, attitudes toward cricket could lead to decision-making. Consumers who think of cricket as a good source of protein, clean, and a good snack are likely to buy cricket food products more often and spend more on cricket. Consumers consider taste, product novelty, color, smell, food certification, and nutrition. These results are associated with Durst and Hanboonsong (2015) who studied factors influencing the consumption of edible insects in the northeastern region. The development of edible insect products with a safety seal or a label on the nutritional value of insects will attract consumers. Wong and Tzeng (2021) found that organic labeling awareness and food safety attitudes directly influenced consumer organic food purchase intentions when they were aware of green products. Results also show that the decision-making process also relates to purchasing behavior. Intentional consumers tend to search for more information about products before buying.

In contrast, unintentional consumers tend to be attracted by persuasive marketing messages, like taglines. Onwezen (2019) established that consumers with high health concerns were more likely to have cognitive buying, while consumers with low health concerns were more likely to have emotional buying. Resulting from consumer attitude, consumers perceive the product's value and purchase accordingly (Balaji & Maheswari, 2021).

Thailand has insect-eating as a culture, especially in the Northeast and the North of Thailand. Tan et al. (2015) established that cultural exposure created expectations of which species were more appropriate to eat, and how they should be prepared. In contrast, individual experiences determined whether judgments were made based on memories of past eating experiences or visual properties and items associations. Thai consumers have experience purchasing and consuming various edible insects, bringing about a positive attitude toward various cricket food products. However, for consumers that have never tried edible insects, marketing communication will play an essential role.

In addition, IMC exposure also has a positive relationship with cricket food purchasing behavior. According to Rogers (2011), IMC tools play an essential role along the marketing funnel or customer journey, from building awareness to purchasing, usage, and post-purchase behavior. Therefore, if consumers are exposed to more IMC tools more frequently, they tend to buy and consume cricket food products more often. Moreover, cricket food purchasing behavior will lead to consumer attitudes toward cricket food products. Pambo (2018) established a study assessing attitudes and motivations of consuming insect food. In the case of cricket flour bread, it

was found that cricket flour bread caused more positive emotions and attitudes among consumers than other types of cricket food processing. For future food products like cricket food, an excellent source of knowledge is from actual product trials, which enhance the attitude-behavior relationship, and this may occur even when individuals try products that do not conform to their expectations (Yalch & Scott, 1977).

## VI. Conclusions

### 1. Implications

In summary, there is a positive relationship between IMC exposure and attitude toward cricket food products. Therefore, IMC exposure could lead to perceptions, learning, attitudes, and purchasing behavior. There are still concerns about food safety and insect appearance depending on cultural background. Unintentional consumers tend to be attracted by persuasive marketing messages, like taglines.

This research could improve how future food entrepreneurs and marketers communicate with customers to build acceptance and buy more future food. For IMC planners or cricket food entrepreneurs, they should categorize consumers into different types; for example, entomophagy with experience eating edible insects, local residents eating insects as their culture, consumers liking to try novel food, consumers with health concerns, and consumers with different genders and ages. For different target groups, IMC planners can set different communication objectives and strategies, such as giving more information about the benefits of edible insects for health-concerned group, and creating persuasive content to attract consumers that like to try novel food. Moreover, consumers that enjoy trying novel food can be considered early adopters that can help spread the word as influencers or reviewers. Since cricket food can be considered to have an unpleasant shape or be an unfamiliar food to many people, personal selling could be an effective IMC tool to inform people of the benefits of cricket food and persuade consumers to try it. Therefore, marketers can co-create the content about cricket food products, demonstrate and explain how it tastes with online influencers, and publish via social media. For online selling and e-commerce, food entrepreneurs can create a chatbot as a salesperson to provide real-time responses.

### 2. Limitation and Future Research

For future research, several areas need to be studied. There can be studies about how cricket food entrepreneurs experience the market, researchers can compare consumers in different countries or regions, AB testing with the marketing communication messages, the edible insect customer journey, and opinion comparison between processed and non-processed products are recommended. Researchers can also apply different research methods, like qualitative research. Moreover, researchers can apply different statistics, like Structural Equation Model (SEM) or a similar approach, to test the model, which is a limitation of this research. Facing the COVID-19 situation and a time limit, the researcher analyzed only data with correlation statistics.

## References


Balaji, K., & Maheswari, R. (2021). Impact of store image dimensions on shopper's attitude, perceived value and purchase intention. *SAGE Journals*. https://doi.org/10.1177/2158244021994824

Damarjati, I. H., Kusumawati, A., & Mawardi, M. K. (2016). The influence of integrated marketing communication (IMC) on brand equity and purchase decision: Survey on indosat-M3 customers among members of unit Aktivitas band Universitas Brawijaya class of 2014. Journal of Business Administration (Jurnal Administrasi Bisnis; JAB), *34*(1).

Department of Agriculture Extension. (2021). *News report on 26 March 2021*.

Durst, P. B., & Hanboonsong, Y. (2015). Small-scale production of edible insects for enhanced food security and rural livelihoods: Experience from Thailand and Lao People's Democratic Republic. *Journal of Insects as Food and Feed, 1*(1), 25-31.

Frymier, A. B., & Nadler. M. K. (2017). *Persuasion: Integrating theory, research, and practice* (4th ed.), Kendall Hunt.

Hanboonsong, Y., Jamjanya, T., & Durst, P. B. (2013). Six-legged livestock: Edible insect farming, collection and marketing in Thailand. *RAP Publication*, *3*, 8-21. https://www.fao.org/publications/card/es/c/76e0a383-3ca0-5a7c-8d5a-b3a4262b857f/

Hunjra, A. I., Niazi, G. S. K., & Khan, H. (2011). Relationship between decision making styles and consumer behavior. *Actual Problems of Economics*, *2*, 21-26.

Iqbal, J., Yu, D., Zubair, M., Rasheed, M. I., Khizar, H. M. U., & Imran, M. (2021). Health consciousness, food safety concern and consumer purchase intentions toward organic food: The role of consumer involvement and ecological motives. *SAGE Open, 11*(2). https://doi.org/10.1177/21582440211015727

Kotler, P., Armstrong, G., Saunders, J., & Wong, V. (2004). *Consumer behaviour* (5th ed.). Prentice Hall.

Kotler, P., & Armstrong, G. (2008). *Principles of marketing* (12th ed.), Pearson Education.

La Barbera, F., Verneau, F., Videbæk, P. N., Amato, M., & Grunert, K. G. (2020). A self-report measure of attitudes toward the eating of insects: Construction and validation of the Entomophagy Attitude Questionnaire. *Food Quality and Preference, 79*, 103757. https://doi.org/10.1016/j.foodqual.2019.103757

Liu, A. J., Li, J., & Gómez, M. I. (2019). Factors influencing consumption of edible insects for Chinese consumers. *Insects 2020, 11*(1), 10.

Menozzi, D., Sogari, G., Veneziani, M., Simoni, E., & Mora, C. (2017). Eating novel foods: An application of the theory of planned behaviour to predict the consumption of an insect-based product. *Food Quality and Preference, 59*, 27-34.

Meticulous Market Research. (2021). *Edible insects market.* https://www.researchandmarkets.com/reports/5233747/edible-insects-market-by-product-wholeinsect?utm_source=CI&utm_medium=PressRelease&utm_code=fk3j8g&utm_campaign=1486472+-+Global+Edible+Insects+Market+(2021+to+2027)+-+Environmental+Benefits+is+Driving+Growth&utm_exec=jamu273prd

Mihart, C. (2012). Modelling the influence of integrated marketing communication on consumer behaviour: An approach based on hierarchy of effects concept. *Procedia-Social and Behavioral Sciences, 62*, 975-980.

Ministry of Agriculture and Cooperatives. (2021). *Cricket farm development.* https://www.moac.go.th/news-preview-431991792451

Mongkon, W., & Leejoeiwara, B. (2021). Factors related to cricket protein adoption in Australia. *Journal of Modern Learning Development, 6*(2). 208-222. https://so06.tci-thaijo.org/index.php/jomld/article/view/248079

National Bureau of Agricultural Commodity and Food Standards. (2022). *The first step of "Thai insect hub" sending "Cricket" to penetrate the 30 billion market*. https://mgronline.com/daily/detail/9640000028837

Office of International Trade Promotion, Sydney, Department of International Trade Promotion. (2020). *New food market for insects, alternative protein future food in Australia*. https://www.ditp.go.th/contents_attach/643761/643761.pdf.

Official Statistics Registration Systems Thailand. (2021). *Population and house statistics-population by age 2020*. https://stat.bora.dopa.go.th/new_stat/webPage/statByAge.php

Onwezen, M. C., Van den Puttelaar, J., Verain, M. C. D., & Veldkamp, T. (2019). Consumer acceptance of insects as food and feed: The relevance of affective factors. *Food Quality and Preference, 77*(May), 51-63. https://www.sciencedirect.com/science/article/pii/S0950329318307869

Pambo, K. O. (2018). *Assessment of consumer attitudes and motivation to consume foods from edible insects: The case of cricket-flour buns* (Doctoral Dissertation). Jomo Kenyatta University of Agriculture and Technology.

Rogers, D. L. (2014). *The network is your customer.* Yale University Press.

Sogari, G., Liu, A., & Li, J. (2019). Understanding edible insects as food in Western and Eastern societies. In *Environment, Health and Business Opportunities in the New Meat Alternatives Market,* IGI Global Business Science Reference, 166-181. https://doi.org/10.4018/978-1-5225-7350-0.ch009

Tan, H. S. G., Fischer, A. R., Tinchan, P., Stieger, M., Steenbekkers, L. P. A., & van Trijp, H. C. (2015). Insects as food: Exploring cultural exposure and individual experience as determinants of acceptance. *Food Quality and Preference, 42*, 78-89.

Van Huis, A., Van Itterbeeck, J., Klunder, H., Mertens, E., Halloran, A., & Muir, G. et al. (2013). Edible insects: Future prospects for food and feed security. *Food and agriculture organization of the United Nations.*

Wong, W. M., & Tzeng, S. Y. (2021). Mediating role of organic labeling awareness and food safety attitudes in the correlation between green product awareness and purchase intentions. *SAGE Journals*. https://journals.sagepub.com/doi/full/10.1177/21582440211061565

Yalch, R. F., & Scott, C. A. (1977). Effect of initial trial of a new product on attitude-behavior consistency. *Advances in Consumer Research, 4*, 81-86.

Yamane, T. (1973). *Statistics: An introductory analysis.* Harper and Row.