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ENTREPRENEURIAL ACTIVITY IN SLOVENIA: THE ROLE OF GENDER AND HOUSEHOLD INCOME

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Abstract

Entrepreneurial activity is considered an important aspect of the organization of industries most conducive to innovation and unrestricted competition and, at the same time, it is viewed as one of the most important factors in the economic progress of a country. Entrepreneurial activity depends, among other, on several individual factors. This paper investigates the correlation between entrepreneurial activity and individual predictors such as gender and household income based on the data from Global Entrepreneurship Monitor (GEM). The paper aims to help fill the gap in the literature by providing a quantitative analysis of the relationships and effects between entrepreneurial activity, gender, and household income in Slovenia. The empirical results show that the correlations between entrepreneurial activity and gender could not be confirmed, while the correlations between household income and entrepreneurial activity can be demonstrated for the bottom and the top third of the household income category.

Key Words

Entrepreneurial activity; gender; household income; Global Entrepreneurship Monitor.

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INTRODUCTION

Entrepreneurship can be defined as a phenomenon that involves identifying, evaluating and exploiting opportunities, which requires people to have different beliefs about the value of resources (Shane & Venkataraman, 2000). Both researchers and policy-makers have widely recognized the prominent role of entrepreneurship in an economy. Overall, entrepreneurship is seen as a key mechanism for boosting employment and productivity growth, increasing competitiveness and innovation in economies, and promoting social inclusion and equal opportunity (Svetek & Drnovsek, 2022).

It is widely believed that entrepreneurial activity is an important aspect of the organization of industries most conducive to innovation and unrestricted competition (Stel et al., 2005), as well as one of the most important factors in a country's economic progress. Entrepreneurship can invigorate development by driving progress, bringing about change, and improving competition. In terms of a developing economy, entrepreneurs are an important resource as they also contribute to social development, act as problem solvers by bringing ground-breaking plans to the market, drive significant developments by bringing new products and services on the market, and create an attractive business climate by enabling the creation of new organizations (Voda et al., 2020). As recently as 2012, Slovenia had one of the lowest participation rates of women in early-stage entrepreneurial activities (last in Europe, second to last in the world). After 2018, women's early-stage entrepreneurial activity started to increase, reaching a new high in 2021. Therefore, we wanted to investigate if there are still gender differences and if we can identify the income level as an influencing factor.

The aim of this study is to analyse the specific role of gender and household income as explanatory variables for early-stage entrepreneurial activity in Slovenia in 2021. Data from GEM (Global Entrepreneurship Monitor) is used, which includes the rate of Total Entrepreneurial Activity (TEA), which may be defined as the "percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business" (Bosma et al., 2021). This variable is measured uniformly across a range of countries covered by the research and represents a useful index for measuring the extent of "entrepreneurship". The introductory section is followed by an overview of the concept of entrepreneurial activity and the individual factors of gender and household income, and hypotheses development. The following section provides a description of the research methodology and data. The paper ends with research findings and discussion followed by the conclusion.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

There are numerous definitions of entrepreneurship in the literature, but there is no doubt that entrepreneurship has been an essential component of

economic development for quite some time. There are several observational studies (Johannessen et al., 2001) that focus on characterizing the idea of entrepreneurship and examining the positive relationship between innovative activities and economic indicators. An entrepreneur is usually characterized as a person who tries to seize an opportunity, provides the important means to start a business, and faces challenges (Bloch, 2020). As an innovator, an entrepreneur launches new products and developments, explores new business areas for existing products, and develops new advertising techniques (Steyaert & Hjorth, 2003). Entrepreneurship contributes to capital raising by pooling reserve funds and ventures, creating conditions for society to thrive, contributing to adjusted territorial improvement of the country, and helping to reduce the convergence of monetary power owned by a single person (Kafaji, 2019). The entrepreneurial consumption offer in the form of new goods and services leads to new jobs, which affect the economy by contributing to an increase in national income through higher tax revenues and can be used for interest in various areas (Tleuberdinova et al., 2019).

Entrepreneurial activity depends on a number of individual factors as well as regional and national aspects. Economics, political science, epistemology, sociology and cultural and institutional theory all recognize the importance of individual characteristics, sociocultural perceptions, cultural values, and regulatory and normative dimensions on the level of entrepreneurial activity in different countries (Santos et al., 2017).

Moreover, entrepreneurial activity is a global economic and social phenomenon in which entrepreneurs take on various commitments and accept the risks associated with starting a new business, with the expectation that this attitude will have an impact and lead to higher levels of productivity and income (Leitão & Capucho, 2021). Entrepreneurs' motivation, inspiration, and enthusiasm for independence and freedom in their new ventures are crucial. However, the literature shows that more empirical studies are needed at the macro level to define the nature of institutional climate that determines entrepreneurial activity (Smallbone & Welter, 2020). Considering that entrepreneurship is one of the variables that contribute to structural change in nations, it can be considered as an important switch for economic turnaround and development, especially by strengthening the competitive elements and innovation frontier of small and medium enterprises (Stam et al., 2011). Chowdhury et al. (2019) state that entrepreneurship is fundamental to the vitality of economies, emphasising that enterprises are at the core of the scope and nature of entrepreneurial activity.

Entrepreneurial activity in the form of various operating companies and self-employed individuals is consistently influenced by various determinants on the supply and demand side of the market (Dvouletý, 2021).

Over the years, various authors have analysed entrepreneurial activity with the use of TEA[1] as part of the model in their work. Furthermore, new

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[1] Total early-stage Entrepreneurial Activity (TEA) is the % of 18-64 year old population that is either a nascent entrepreneur, or owner of a business.

business creation is assumed to be the result of individuals' decision to improve themselves, which is consistent with Schmitz's (1989) theoretical framework. According to data from the 2020 and 2021 reports of GEM (Bosma et al., 2021), TEA includes early-stage entrepreneurs driven by opportunity, aged 18-64, who are driven to entrepreneurial ventures out of a need to become independent and increase their income, and early-stage entrepreneurs who engage in business creation because there are no accessible jobs (necessity-oriented entrepreneurs). TEA rates relate to opportunity and necessity distinguish between entrepreneurs who are driven to seek business opportunities from those whose entrepreneurial activity results from an inability to pursue other economic options (Voda et al., 2020).

Gender as an enabler of entrepreneurial activity

In addition to entrepreneurial activity, as measured by the TEA index, this study also considers predictors such as gender and household income. When one group in society does not start a business on an equal footing with other groups, it limits job creation, innovation, income accumulation, the availability of new products and services, and many different benefits that new businesses bring to the economy and society.

There is a growing body of research on the role of gender in entrepreneurial activity, and the findings suggest that gender can have both facilitating and inhibiting effects on entrepreneurial activity. Research has shown that certain gender-related characteristics, such as risk-taking and access to networks, can promote entrepreneurial activity. For example, a study by Cooper et al. (1994) finds that men are more likely than women to start a business because they are more willing to take risks. Other research suggests that men have better access to networks and resources that can provide them with the support and resources they need to start and grow a business (Neumeyer et al., 2019). However, research has also identified a number of barriers that may limit women's entrepreneurial activity. These include societal expectations and stereotypes about women's roles and capabilities, as well as structural and institutional barriers such as access to funding and a lack of supportive policies and programs (Brindley, 2005). Overall, research findings suggest that gender can both promote and inhibit entrepreneurship and that efforts to promote and support female entrepreneurship may be necessary to level the playing field and ensure that women have equal opportunities to start and build businesses.

While a number of research studies document a growing number of women entrepreneurs and women-owned businesses, the results show that men's entrepreneurial activity is still higher than women's (Tsyganova & Shirokova, 2010). Bosma et al. (2021) find that in most cases men are the ones who are more likely to start a business venture, although some examples prove otherwise, and there are others where the difference is small. When discussing the role of gender in the development of entrepreneurial activity, it is important to note that authors such as Voda et al. (2020) find that women's innovativeness and pioneering potential add to entrepreneurial development and the creation of new jobs. As indicated by

information presented by the European Commission (2019), women make up 52% of the absolute European population, but represent only 34.4% of the self-employed and 30% of start-up entrepreneurs. In addition, the results show that businesses run by women have the fastest development. Due to the importance of female businesses in the monetary and social development and improvement of a country, some authors take an all-encompassing viewpoint and utilize an appropriate structure suitable for understanding women's businesses and the elements that add to the entrepreneurial movement (Brush et al., 2009).

Moreover, the findings of a research conducted by Santos et al. (2017) show a notable impact of gender on entrepreneurial activity in its initial stages. Similarly, men are more bound to take part in the initial stages of the entrepreneurial movement than women. Moreover, Özdemir and Karadeniz (2011) focus on business visionaries in Turkey and show that men with higher pay and training levels can identify business opportunities and have a higher probability of becoming entrepreneurs. The authors note that entrepreneurs in Turkey are predominately men and that men are twice as likely to become entrepreneurs than women. Likewise, Haus et al. (2013) analyse gender differences in entrepreneurial intentions and activities of entrepreneurs in Europe and the United States. and find that the average entrepreneurial intention is higher among men than women. Although important, gender differences in entrepreneurial intentions and activities were too small to adequately explain the differences in starting ventures.

There is some empirical research data suggesting that there may be differences between men and women in the motives for entrepreneurship. However, it should be noted that these differences may vary depending on the specific context and individual circumstances. In their study by Greene et al. (2003), find that men are more likely to start a business to achieve financial gain, while women are more likely to start a business to pursue their passion or to fill a need in the marketplace. Another study by Wong-MingJi et al. (1999) argues that men are more likely to start businesses to gain status and power, while women are more likely to start businesses to achieve work-life balance and to have control over their own careers. It should be noted that these results should be interpreted with caution, as there may be other factors that contribute to differences in motives for entrepreneurship between men and women, such as cultural and societal expectations and biases. In addition, it is likely that there is a high degree of overlap between men's and women's motives for starting a business.

Given the importance of gender to entrepreneurship, the study proposes to test the following hypothesis:

H1: Men are more likely to engage in early – stage entrepreneurial activity than women.

Household income as an enabler of entrepreneurial activity

Household income can play a role in enabling entrepreneurial activity in several ways. For example, higher household income may provide

individuals with the financial resources and stability needed to start a business, as well as the ability to take risks and withstand potential financial losses. There is empirical research data supporting the relationship between household income and entrepreneurial activity. A study by Gaglio & Katz (2001) finds that individuals with higher income and education are more likely to be entrepreneurial. Another study argues that individuals from higher-income households are more likely to start a business, especially in industries with higher start-up costs (Nandamuri & Gowthami, 2013). In addition, individuals with higher household incomes are more likely to report having the financial resources needed to start a business, such as access to capital and savings. On the other hand, authors such as Hurst and Lusardi (2004) find that the relationship between income and entry into entrepreneurship is flat across most of the wealth distribution, while only at the top end of the wealth distribution-after the ninety-fifth percentile-can a positive relationship be found.

Other research also suggests that household income may be a predictor of entrepreneurial success. For example, a study by Bae et al. (2014) finds that individuals from households with higher incomes are more likely to achieve greater success in their ventures. Overall, the results suggest that household income may be an important factor enabling entrepreneurial activity and success. However, it should be noted that other factors such as education, skills, and access to resources and networks may also play a role in enabling entrepreneurial activity.

The relationship between household income levels and levels of entrepreneurial activity is necessarily complex, both within and across economies. Financial wealth in the form of household income is another important precursor to entrepreneurial activity. Not only are high-income households more able to provide the necessary financial resources for entrepreneurial activity, but high-income households are also more likely to have more entrepreneurial growth opportunities because of their social status (Dunn & Holtz-Eakin, 2000). Exogenous influences (such as demographics, society, characteristics, financial support, and culture) affect attitudes and indirectly affect intentions and behaviours to become entrepreneurs (Shapero, 1982). Among the exogenous factors, the household may be considered as one of the most important because it acts as a backstop for the entrepreneur. Several studies (Evans & Jovanovic, 1989) argue that a lack of financial resources in the form of household income limits entrepreneurial activity.

High-income economies, like high-income individuals, tend to have more opportunities and better access to the resources needed to take advantage of those opportunities. On the other hand, starting one's own business in a high-income economy can involve high opportunity costs in terms of foregone wages, while social security systems can break the direct link between work and income. In low-income economies, as with low-income individuals, there are likely to be fewer alternative sources of income, so starting one's own business may be an economic necessity (Bosma et al., 2021). Individuals whose family's incomes are higher might be keen on more worthwhile business opportunities than low-income individuals, as monetary

abundance may provide the better quality of living. Higher level of financial resources gives more significant monetary assets, permitting business visionaries to attempt bigger endeavours prior to looking for outer sources of funding. However, when resources are unavailable or low, development is challenging to accomplish, whether or not inspiration is available (Carreón-Gutiérrez & Saiz-álvarez, 2019). On the other hand, Kim et al. (2006) find no significant effect of household income and wealth on entrepreneurship entry.

Following the above reasoning, the second hypothesis is stated as follows:

H2: Household income is positively and significantly associated with early – stage entrepreneurial activity.

DATA AND METHODOLOGY

The Global Entrepreneurship Monitor (GEM) database provides insights into the characteristics of entrepreneurs, ranging from standard sociodemographic characteristics to more specific entrepreneurial characteristics, perceptions, and attitudes. In this study, the focus is on data related to entrepreneurial activity as well as gender and household income as factors influencing entrepreneurial activity. The data used in this study were collected as part of the National Adult Population Survey.

In this study, the research is based on the GEM dataset for Slovenia from 2021, which includes 2000 observations. The dependent variable used in this study is entrepreneurial activity (it indicates how entrepreneurial societies actually are). To quantify the level of entrepreneurial activity, the proxy variable for total early-stage entrepreneurial activity (TEA) was utilized. The variable incorporates the classification of the population aged 18-64 that is either actively trying to start a new business or is involved with a business that is less than three and a half years old. Estimated as a dichotomous variable that takes the value of "1" if respondents affirm their involvement in early-stage entrepreneurial activities and "0" otherwise. The aforementioned approach of measuring entrepreneurial activities with a single proxy item is widely accepted and used by researchers (Voda et al., 2020).

Regarding household income, this GEM variable categorizes household income into thirds according to the national distribution (lowest 33%, middle 33%, highest 33%). The annual income of the whole household, including the respondent, must be guaranteed. Among the start-ups, those who belong to the upper third of household income are represented with high expectations (Carreón-Gutiérrez & Saiz-álvarez, 2019). The variable gender can appear as "1" (for the male gender) and "2" (for the female gender).

The hypotheses are tested using the binary logistic regression for predicting the probability of the effects of the previously stated influencing factors on entrepreneurial activity. The SPSS 20 software is used to perform the analysis. The dichotomous dependent variable takes the value "1" with a probability of success q (where 1 represents participation in TEA) or the

value "0" with a probability of 1-q (no participation in entrepreneurial activities). This form of analysis is applied because the dependent variable is dichotomous.

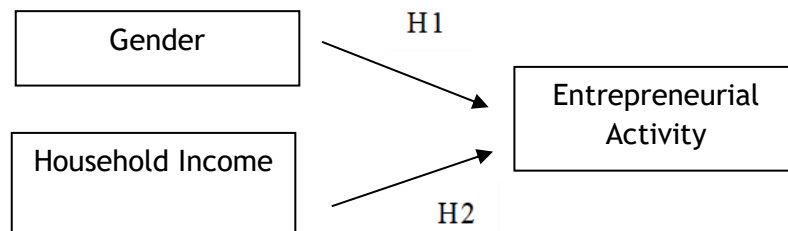**Figure 1:** Graphical form of hypotheses

Figure 1 represents the graphical form, while regression model can be presented in the stochastic form in the formula (1) as follows:

$$\log\left(\frac{\pi(y)}{1 - \pi(y)}\right) = \beta0 + \beta1\,x1 + \beta2\,x2 \quad (1)$$

Where:
y - dependent variable: value of the TEA index
x_1 - independent variable: gender
x_2 - independent variable: household income
$\beta_0, \beta_1, \beta_2$ – value of the regression coefficients

Based on the priory stated the formula takes the form (2):

$$\log\left(\frac{\pi(TEA)}{1 - \pi(TEA)}\right) = \beta0 + \beta1\,gender + \beta2\,household\ income \quad (2)$$

RESEARCH RESULTS AND DISCUSSION

In this section, the results of the hypotheses testing are presented and discussed. From the case processing summary, the sample size is N=1771, which means that 229 cases are missing from the 2000 cases originally recorded. Furthermore, the coding of the dependent variable shows that the dependent variable is indeed dichotomous, ranging from 0 to 1 depending on whether the respondents selected "no" or "yes" as their answer to the question about entrepreneurial activity.

Further on, categorical variables coding represents a description of the coding of additional variables included in the logistic regression equation for those categorical variables that have more than two possible values. The variable related to the household income appears in the lowest 33% tile in 646 cases, in the middle 33% tile in 580 cases and in the top 33% tile in 545 cases. Individuals living in households that belong to the top third are the

category with which we will compare the remaining individuals below. Variable (1) describes households in the bottom third and variable (2) describes households in the middle third, while the gender variable has only two possible values. Omnibus tests of model coefficients contain the values for the chi-squared statistic and significance level. Since stepwise logistic regression or blocking were not used the results for step, model, and block are identical. The value in the Sig. column is the probability of obtaining the chi-squared statistic if the null hypothesis is true, comparing the p-value to a critical value of 0.05. Since the significance level of 0.012 is less than 0.05, the overall model is statistically significant. Omnibus tests of the model coefficients can be considered significant since $p < 0.05$, confirming the causal relationship of the proposed model and the hypothesis that the β-coefficients are different from zero.

In addition, the model summary shows the values of the "pseudo" R-squares, since the logistic regression does not have the R-square normally found in OLS regression. The Cox & Snell R-squared is based on the logical probability for the model compared to the logical probability for a baseline model. Furthermore, Cox & Snell R-squared and Nagelkerke R-squared indicate that the variables under consideration explain a significant amount of the variance in entrepreneurial activity. To determine how much of the variance of the dependent variable is explained by the observed binary logistic model, the values of Cox and Snell's R-squared and Nagelkerke R-squared were analysed. The explained variance of the criterion in the model ranges from 0.6% to 1.9%, depending on the observed measure, but it is generally considered that Nagelkerke R-squared is the preferred measure for the analysis of explained variance in binary models, since the second measure cannot reach the value 1 and the explained variance is expressed by values between 0 and 1. The model summary shows the variance of information explained by the standard binary logistic model, i.e., the amount of unexplained information that remains after fitting the model. The result of 1.9% explained variance in the model is not entirely satisfactory. The value of the variance indicator (-2LL=682.95) suggests the statistical acceptability and adequacy of the model at this step.

The classification shows the analysis of the quality of the model as a whole - percentage of correct classifications. Assuming the results of the logistic regression and the obtained equation, the "calculated" value of the variable "Total involved in early-stage entrepreneurial activity" would be correct 95.1% of the time (i.e., 0 if it is also 0 in the data; or 1 if it is also 1 in data). The data regarding the variables in the equation can be seen in Table 1, including information on the significance level and odds ratio.

Table 1: Variables in the Equation

Variables in the Equation		B	S.E.	Wald	df	Sig.	Exp(B)
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[*]	Fender	-,308	,224	1,890	1	,169	,735
	GEMHHINC			7,645	2	,022	
	GEMHHINC(1)	-,724	,295	6,030	1	,014	,485

GEMHHINC(2)	,015	,251	,004	1	,952	1,015
Constant	-2,309	,356	41,936	1	,000	,099

* Variable(s) entered on step 1: gender, GEMHHINC.

Table 1 demonstrates that the variable "gender" is not statistically significant, since the Sig. > 0.05, therefore the hypothesis H1 cannot be proved. Regarding the variable "household income", the hypothesis H2 can be proved only in the sections of the lowest 33% and in the top 33%, where the significance level < 0.05, while the significance level of Sig. = 0.952 shows that the middle 33% in the household income category do not support the hypothesis H2. The odds ratio for the bottom third of household income (Exp(B)= 0.485) shows that the surveyed population is 0.4 times more likely to engage in entrepreneurial activity than the population in the top third of household income.

Based on the above principle, it can be said that hypothesis H1 cannot be proved, while hypothesis H2 can be proved for the lowest and the highest third of the household income category. Looking at the previous research in Chapter 2, especially Subchapter 2.1, it can be seen that the results for Hypothesis H1 obtained through this research do not support the findings of Bosma et al. (2021), Santos et al. (2017), and Haus et al. (2013), which state that men are more likely to be entrepreneurial. Considering the results of testing hypothesis H1, the obtained results are more related to the research of Voda et al. (2020) and Brush et al. (2009), which stated that women are more likely to be entrepreneurial due to their psychological characteristics.

Having the priory stated results in mind, there are a number of ways to support and promote female entrepreneurship through policies that governments and other organizations can adopt. Examples include loans, grants, and investment capital specifically targeted to women-owned businesses, or the provision of business development and training programs, including mentoring programs, incubators, and accelerators that provide women entrepreneurs with the skills and knowledge they need to succeed. In addition, it is important to combat unconscious bias by having governments and organizations undertake initiatives to raise awareness and promote equality in the workplace. This could include training programs for business owners and employees on diversity and inclusion. Furthermore, work-life balance can be promoted through policies such as paid family leave and flexible work arrangements to support women who want to balance work and family. Governments and organizations can create an ecosystem that supports and encourages female entrepreneurship by organizing networking events, promoting women-led businesses, and partnering with organizations that support women in business. It is important to note that these policies should be tailored to the specific needs and challenges of women entrepreneurs in a given context.

The results obtained for hypothesis H2 can be interpreted in different ways or even considered contradictory. Since hypothesis H2 was confirmed for the lowest and the top third of household income, the following explanation can be given: The relationship between entrepreneurial activity and the respondent population from the lowest 33% of income can be

explained by the need of these people to engage in entrepreneurial activity and in this way contribute to financial well-being. This does not preclude their potential entrepreneurial intention or enthusiasm, but rather suggests that necessity plays an important role in their business creation. Policy implications can be one of the tools to encourage low-income individuals to engage in opportunity driven entrepreneurship. There are a number of policy actions that governments and other organizations can take to support and encourage entrepreneurship among low-income individuals, including initiatives such as loans, grants, and investment capital. Tools also include business development and training programs that act as mentors, incubators, and accelerators to provide low-income entrepreneurs with the skills and knowledge they need to succeed. Access to education and training can also be an important step, as low-income individuals may not have the same access to education and training as higher-income individuals. Governments and organizations can provide affordable or free education and training programs to help low-income individuals acquire the skills needed to start and run a business.

In addition, participants from the top 33% of household income can be characterized as those who are entrepreneurial by choice, based on internally created or externally identified opportunities and potential. Since financial wealth is not the only reason for this group of entrepreneurs to start a new business, various motives and drivers for their engagement in starting a new business can be discussed. The results of this study should also be considered in the context of its limitations in terms of time scope and number of variables covered. The fact that only the year 2021 was included in the study might be too short a time period to obtain truly representative results, especially when 2021 can still be considered a (post-)pandemic year and certainly differs from the objective reality before the pandemic.

CONCLUSION

Entrepreneurial activity is a financial and social peculiarity around the world, in which entrepreneurs assume various obligations and take the risks associated with the creation of a new venture, trusting that this venture will have an impact and contribute to higher levels of efficiency and income (Leitão & Capucho, 2021).

Based on the literature review, the paper provides insight into the relationships between entrepreneurial activity and its predictors in terms of gender and household income. The paper aims to help fill the aforementioned gap in the literature by providing a quantitative analysis of the relationships and effects between entrepreneurial activity, gender and household income in Slovenia. As mentioned above, gender differences in early – stage entrepreneurial activity are decreasing and that may be the reason why the empirical results of the paper show that the correlations between entrepreneurial activity and gender in Slovenian sample could not be confirmed. On the other hand, the correlation between household income and entrepreneurial activity can be demonstrated for the lowest and the top

third of the household income category. By examining the factors that influence entrepreneurial activity, this approach contributes to the existing literature by reviewing the results regarding the influence of gender and household income. The results regarding the gender dimension are not consistent with some previous research, but may highlight the work of other authors who have a different view of the role of masculinity and femininity in business creation. In addition, the results related to household income open up new research questions on motivation and opportunity perceptions among entrepreneurs with the lowest and highest household incomes. Future research questions should clarify whether the difference in household income, and thus entrepreneurial activity, depends on the motivation for the entrepreneurial venture; do opportunity costs, opportunity perceptions and motivation play different roles in different income groups. However, further research should be conducted to gain deeper insight into the relationships. In addition, the study's limitation to measuring direct relationships between the above concepts and the sample limited to a single country provides a starting point for future research directions that could cover a longer time span and include samples from additional countries, either in the surrounding area or at the European Union level.

The differences in the intensity of entrepreneurial activity by gender structure underscore the need to include other dimensions when assessing the extent to which the entrepreneurial environment enhances participation in entrepreneurial activities by all. As far as gender differences are concerned, the entrepreneurial environment should also ensure conditions that allow for a more equal organization of family life (child care, kindergarten, meals at school and at work, more intensive use of maternity leave by fathers, care for the elderly, cultural attitudes towards the role of women in the family and the like).

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ASSESS THE ROLE OF CAREER EXPLORATION IN EXPANDING SOCIAL COGNITIVE CAREER THEORY

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Abstract

The issue of career choice plays an important role in students' future. Researchers have conducted many studies to explain the career choice process. However, choosing the right career is still very difficult. This article examines the role of career exploration and determines how it works throughout social cognitive career theory. Data were collected using a questionnaire designed on Google Forms in June 2022. In addition, 340 Vietnamese students participated in this study. The research hypotheses were tested through SmartPLS 3. The results have once again confirmed the role of social cognitive career theory in explaining the career selection process. Another interesting finding was that environment exploration had a more substantial effect on the relationship between self-efficacy and career choice than self-exploration. Finally, the article further clarified the role of career exploration and helped universities devise tailored study programs to make the career choice process more efficient.

Key Words

Career choice; self-efficacy; outcome expectation; career exploration.

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INTRODUCTION

Throughout life, an individual has to make many decisions that sometimes dramatically affect their entire life. Career choice plays a core role in forming related factors, such as career orientation or career development (Gati et al., 2019). Many studies have confirmed the important role of career choice (Alinea, 2022) in determining job satisfaction or enjoyment (Lamanauskas and Augienė, 2018), and Maree (2018) argues that choosing the right career helps students adapt more quickly to the working environment.

Choosing a satisfying career is always tricky. Regarding personal causes, individuals are less conscious of proactive career planning and often expect help (Preston and Biddle, 1994), or information disturbances cause hesitation (Udayar et al., 2018). Objective causes often include the disappearance of occupations (Hite and McDonald, 2020). In another aspect, an imbalance occurs due to the lack of highly qualified human resources, while unskilled labour is gradually replaced by machinery (Heinrich and Witko, 2021). As a result, many individuals experience job dissatisfaction (Kulcsár et al., 2020) because they cannot adapt to the environment or obtain low efficiency; consequently, regret and other negative emotions emerge (Li et al., 2015).

This article focuses on students because they are still at the early stage of discovering their abilities, values, and interests (Gati and Saka, 2001). In addition, despite having experience in part-time or freelance jobs, students were still unsatisfied with their choice. Therefore, to answer how to choose a career effectively, the process of forming professional behaviour needs to be considered and elaborated on in a general way. Therefore, this study focuses on examining the role of individuals and how they interact with the environment through career exploration to overcome the lack of information (Gati and Kulcsár, 2021) about the environment and the individual self. As stated by Betz and Voyten (1997), Shea et al. (2007), and Chen et al. (2021), this research examines the role of career exploration and determines how it works throughout the career choice process.

LITERATURE REVIEW

Career choice

A career is defined as "the progress and development of the person in working life" (Kirpik and Yilmaz, 2020) or "the sequence of work experiences that evolves over the individual's life course" (Van der Heijden and De Vos, 2015). Career choice is the process by which individuals "choose an occupation and the educational training involved, then a job and then whether to stay at a job or switch to another, what formal and informal advanced training to take" (Kulcsár et al., 2020). In addition, Manjooran et al. (2021) defined career choice as "the selection of a type of profession".

Social cognitive career theory (SCCT)

Since it was developed by Lent et al. in 1994 based on Bandura's social cognitive theory (1986), SCCT has argued that career choice intentions and behaviours are governed by self-efficacy and outcome expectations. Due to its comprehensiveness, SCCT and related models are now widely used in academia, especially in career choice (Owusu et al., 2018; Tetteh et al., 2021; Hatane et al., 2020).

The definition of Outcome expectation was stated by Zhou et al. (2014): "one's judgement about the potential outcomes of a given behaviour". Tien et al. (2009) suggest that outcome expectations positively predict career choice behaviour. Kuthea Nguti et al. (2021) tested the role of outcome expectations on efficiency and individual satisfaction with the chosen profession. On the other hand, the statement of Lindley (2005) asserts that outcome expectations explain and motivate behavioural choice. Finally, Komarraju (2014) also supports the positive influence of outcome expectations on career choice:

H1: Outcome expectations positively influence career choice.

Career exploration is how individuals improve their knowledge about careers and related information (Heymann et al., 2022). Chan (2018) defines career exploration as collecting information about selectable occupations to make more effective decisions. Chen et al. (2021) believe that career exploration is the beginning of sustainable career development. Self-exploration helps individuals increase their understanding of their abilities, personalities or interests, thereby eliminating careers they consider unsuitable. On the other hand, environment exploration helps gather more objective information from which individuals can assess whether the environment is suitable. Specifically, self-exploration allows choosing a career that matches the individual's abilities. Exploring the environment enhances adaptability to a new job. In addition, evidence suggests a strong link between effective career exploration and career choice (Presbitero and Teng-Calleja, 2022; Railey and Spector, 2022). Based on the above argument, the following hypothesis is proposed:

H2: Self-exploration positively influences career choice.
H3: Environmental exploration positively influences career choice.

Self-efficacy is a subjective assessment of an individual's ability to perform a behaviour (Zulkosky, 2009). On the other hand, Landino and Owen (1988) claim individuals' confidence in using their abilities to perform or control behaviour (Çalli and Kartal, 2021). However, considering the relationship between self-efficacy and career exploration, Chan (2018) argues that self-efficacy will increase individual engagement in the career exploration process. On the other hand, high self-efficacy incentivises individuals to participate in career exploration as a form of preparation for making career decisions (Tsai et al., 2017).

In particular, the stronger the belief in self-efficacy, the more individuals want to learn about themselves to verify their beliefs. In addition, individuals will also promote environment exploration to ensure more effective career choice behaviour. Self-efficacy helps guide the process of better career exploration. At the same time, self-efficacy makes individuals more proactive when reducing mental or cognitive difficulties during career exploration (Storme and Celik, 2018; Glessner et al., 2017). This positive relationship is also demonstrated in many studies, such as Gushue et al. (2006) and Penn and Lent (2019). From the above arguments, this study proposes the following hypothesis:

H4: Self-efficacy positively influences self-exploration.
H5: Self-efficacy positively influences environmental exploration.

According to SCCT, self-efficacy strongly influences and explains outcome expectations (Lent et al., 1994). In other words, self-efficacy indicates outcome expectations (Baglama and Uzunboylu, 2017; Brown and Cinamon, 2016). Specifically, Alexander et al. (2011) explain that a firmer belief in an ability to perform a behaviour will lead to "more hopeful of benefiting in a meaningful way from the positive outcomes". According to Jiang and Zhang (2012), self-efficacy for the performance of the behaviour enhances the individual's positivity in assessing the expected outcome. This view of this positive relationship, as well as its role in practical career choice, has also been demonstrated by Nguti et al. (2021), DeFreitas (2012), Sawitri (2015), and Dickinson et al. (2017). From the above arguments, the following hypothesis is established:

H6: Self-efficacy positively influences outcome expectations.

RESULTS

Career exploration adopts the scale of eleven observed variables from the study of Stumpf et al. (1983). Two variables of SCCT are measured based on eight observed variables from the scale of Betz et al. (1996) for self-efficacy and the ten observed variables for outcome expectation (Metheny and Mcwhirter, 2013). Finally, this research uses a scale including six observed variables to measure career choice in the study of Mu (1998). The data were collected by questionnaire via Google Forms with 340 valid samples. The proportion of women accounted for 70.9%, men accounted for 29.1%, and most were in the "economics - administration" category (69.7%). Data were analysed using SPSS version 20 and SmartPLS 3.0 software to verify the research results.

Table 1: Descriptive statistics

Classification	Categories	Frequency	Percentage

Gender	Male	99	29.1
	Female	241	70.9
Major	Economics - Administration	237	69.7
	Social Sciences - Humanities	74	21.8
	Natural Science- Engineering	29	8.5

Measurement model assessment

Data were analysed by measurement model assessment. According to Hair et al. (2017), scale reliability requires composite reliability (CR) and Cronbach's α (CA) greater than 0.7. Table 2 shows that the minimum CA value is 0.854, and the minimum CR value is 0.895. All scales have outer loading coefficients all over 0.7, and an AVE index greater than 0.5 indicates that the observed variables of the scale can explain more than 50% of the variance of the concept it represents (Henseler et al., 2015). It is concluded that the scale achieves the required reliability and convergence and does not experience multicollinearity (VIF<5) (Hair et al., 2014).

Table 2: Convergent validity and multicollinearity test

	CA	CR	AVE	Outer Loading		VIF	
				Min	Max	Min	Max
Career Choice	0.898	0.922	0.662	0.782	0.814	1.903	2.491
Environment exploration	0.888	0.915	0.643	0.736	0.870	1.711	2.885
Outcome expectations	0.913	0.928	0.562	0.703	0.814	1.802	2.491
Self-exploration	0.854	0.895	0.631	0.758	0.831	1.614	2.046
Self-efficacy	0.899	0.919	0.587	0.727	0.797	1.761	2.156

Table 3 presents the discriminant validity, which represents the extent to which the factors are distinct and uncorrelated. This value was evaluated by comparing the square root of the AVE of each construct and its intercorrelation with other constructs (Fornell and Larcker, 1981). Thus, it can be seen that this coefficient (bold numbers) is greater than other intercorrelations satisfying the Fornell–Larcker criteria (Henseler et al., 2015).

Table 3: Discriminant validity

	Career choice	Environment exploration	Outcome expectations	Self-exploration	Self-efficacy
Career choice	0.814				
Environment exploration	0.656	0.802			
Outcome expectations	0.746	0.631	0.750		
Self-exploration	0.603	0.655	0.594	0.795	
Self-efficacy	0.688	0.645	0.715	0.625	0.766

Structural model assessment

Hair et al. (2017) prioritise the evaluation of the structural model to test through the coefficient of determination (R^2). According to the standards of Hair et al. (2011), the analysis results (Table 4) show that the concepts in the model have the smallest R^2 value of 0.39, and all values reach the average predictive level.

Table 4: Results of determination R^2, predictive capacity Q^2

	R Square	Q Square
Career Choice	0.624	0.406
Environment exploration	0.416	0.263
Outcome expectations	0.511	0.282
Self-exploration	0.390	0.241

The study carried out a bootstrapping test (N=5000) to examine the relationships between the factors in the model. In Table 5, all hypotheses have statistical significance (P value < 0.05). Next, the path coefficients (β) are all positive, proving that Hypotheses H1, H2, H3, H4, H5, and H6 are supported (Figure 1).

Table 5: Hypothesis assessment

Hypothesis	β	Standard Deviation	t value	p value
Environment exploration→Career Choice	0.242	0.063	3.871	0.000

Outcome expectations→Career Choice	0.508	0.063	8.064	0.000
Self-exploration→Career Choice	0.143	0.063	2.286	0.022
Self-efficacy→Environment exploration	0.645	0.041	15.601	0.000
Self-efficacy→Outcome expectations	0.715	0.037	19.250	0.000
Self-efficacy→Environment exploration	0.625	0.048	12.928	0.000

DISCUSSION

This study examined the relationship among the SCCT backgrounds (self-efficacy, outcome expectations), career exploration, and career choices of Vietnamese students. The results showed that all proposed hypotheses were supported. First, self-efficacy has a positive effect on outcome expectation (β=0.715), self-exploration (β=0.625), and environment exploration (β=0.645). This result suggests that self-efficacy is the basis for building outcome expectations. In detail, individuals own their capacities, which leads to different prospects about the behaviour results. In addition, this shows the role of personal capacity and the correct perception of individuals about the skills they possess to make appropriate assessments. In addition, similar to the result of Rogers and Creed (2011), career exploration is positively affected by self-efficacy, which means that the higher the self-efficacy, the more efficient the exploration. Based on self-efficacy, students can be more confident in discovering their skills and comparing themselves to the explored information. Finally, after understanding self-efficacy, they can choose a suitable career environment.

Figure 1: Model analysis
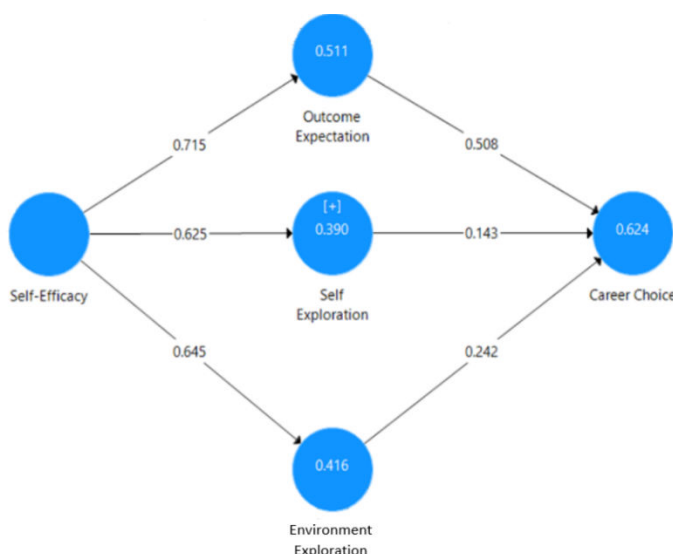
Next, the impact of career exploration on career choice includes self-exploration ($\beta=0.143$) and environment exploration ($\beta=0.242$) (Table 4). This result shows that students must explore themselves to understand their interests, strengths or limitations. When combined with environment exploration, individuals create a strong connection between themselves and the professional environment, which is the basis for making effective career choices, thereby adapting their careers and developing better. Finally, the factor that has the most decisive influence on career choice is outcome expectation ($\beta=0.508$). It is inferred that outcome expectations will change career choice behaviour based on individuals' evaluations of what they will receive in return if they choose that career. In other words, Lent et al. (1994) declared that outcome expectations describe what individuals receive after performing the expected behaviour.

CONCLUSIONS

This study contributes to the theoretical system in two ways. First, applying SCCT explains the formation of career choice more comprehensively. The combination of SCCT and career exploration helps to strengthen the relationship between the individual and the environment more effectively. The second contribution, the independent testing of the role of self-exploration and environmental exploration, is a prominent advantage compared with previous studies, such as Chen et al. (2021) or Heymann et al. (2022). Most previous research only referred to career exploration as a simple information search. Meanwhile, exploration is essential for career orientation and goals (Presbitero and Teng-Calleja, 2022). Therefore, concretising the role of each form of career exploration helps to more comprehensively reflect the nature of career behaviour.

The outcome expectation of a person with the essential mediator role strengthens the relationship between self-efficacy and career choice. For example, if an individual has a high career outcome expectation, self-efficacy will cause them to develop a tendency to choose that career (Lent and Brown, 2013). Therefore, universities need to be equipped with practical knowledge about jobs to make it easier for students to choose a career that can achieve their expectations.

The results also show that environment exploration has a more decisive role than self-exploration in shaping career choice trends. Surprisingly, this result is in contrast to the study of Gross-Spector and Cinamon (2018). Vietnamese students belong to a collective culture, so self-discovery receives little attention. Giving students more opportunities to explore the professional environment through business semesters, seminars, or the faculty's experience will help them become more confident in their career choices.

This study has some limitations. First, the study did not consider the interference between other occupational theories but only built a research model based on the SCCT context. This limit may cause partiality in drawing

relevant or misleading conclusions in different contexts. Second, the model focuses on building factors positively related to career choice, but it is also necessary to consider answering the question, "How can students overcome barriers in career choice?"

Regarding research for the future, in addition to looking at the process or ways of choosing a career, examining the change or comparing the difference in career choice behaviour among many subjects, such as social roles or age, should also be considered (student–student-worker). Next, differences between national or regional cultures can also be an idea when researching career choices or related fields. Finally, longitudinal research can be applied to observe the overall change in career choice throughout career development. On the other hand, future studies also need to examine the mechanism of barriers in the career choice process to obtain a more comprehensive view of career choice.

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ADOPTION OF FINTECH SERVICES IN UTTAR PRADESH: USING EXTENDED TAM

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Abstract

Rapid progression in technology has resulted in the tremendous growth & development of FinTechs, which significantly transformed the framework of the Indian Financial System. So, the present research aims at contributing to the literature by employing extended TAM to examine Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Government Influence (GI) & Security (S) as the factor influencing users' Intention to Adopt (ITA) FinTech Services in India. Our findings revealed that PEOU, PU & GI significantly impact the usage of Financial Technological Services while Security has an insignificant influence on users' intentions. Moreover, it was found that PU mediates the association of PEOU with ITA. Therefore, the present research contributes to the literature concerned with factors affecting users' ITA FinTech Services and validating Technology Acceptance Model (TAM) in anticipating users' ITA FinTech Services by adding Security & Government Influence as additional constructs.

Key Words

Behavioural intention; financial technology; FinTech services; perceived usefulness, TAM.

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INTRODUCTION

The global recession, of 2008 was the catalyst of the growth & development of FinTechs that become users' favorites in no time (Capgemini Research Institute, 2021) because they turned the limitations of conventional financial institutions into their strength. It is one of the rapidly emerging fields in the financial ecosystem, and also the confluence of financial services with expanding technologies is crucial in building a vigorous digital nation that would lead India toward digital transformation (Deloitte, 2017). FinTech services are the digitalized & technology-enabled financial products & services that are provided by FinTech companies & financial institutions (Osman et al., 2021). Such services are altering the way users think while accessing, investing, managing, and spending their savings, in order to achieve their demand of availing financial services at an affordable cost (Shah et al., 2019). The inefficiency of conventional financial services like labor-dependent financial services, paper-based and manually done procedures, etc. offers a great chance for FinTechs to acquire and retain users at low cost, and that would lead to greater adoption of financial services (Deloitte, 2017). The FinTech sector of Asia region is highly dominated by two developing nations namely, India & China (KPMG, 2018). According to Goyal et al. (2021), India has experienced a tremendous rise in FinTech companies as there are more than 2,100 FinTech companies, out of which around 67 percent of them have come into existence in the past five years. Also, the worldwide FinTech industry is anticipated to expand at a CAGR of 23.58 percent from 2021-2025, and with the predicted market opportunity of $1.3 trillion by 2025 and more than 4200 active FinTech firms, India is quickly emerging as the global center for the FinTech industry (EY, 2022). It is because of the initiatives taken by the government & regulatory bodies for the digital nation, with the help of more internet and smartphone usage which led to greater utilization of technology-enabled services (Deloitte, 2017). According to Invest India (2023), "India has the highest FinTech Adoption rate globally of 87 percent which is significantly higher than the Global average rate of 64 percent". And it has one of the fastest budding FinTech ecosystems globally having a FinTech industry market size of $50 Billion which is projected to be ~$150 billion by 2025 and also it documented the highest absolute number of real-time transactions globally crossing around 48 billion that is around 6.5 times of the collective volume of world's leading nations like U.S, Canada, U.K., France & Germany in 2021 (Invest India, 2023).

The usage rate of Fintech services has enormously increased after the COVID-19 outbreak indicating greater financial inclusion (Gupta and Agrawal, 2021). The main reason behind the greater adoption rate of FinTech services is that FinTech companies are mostly aiming at tech-friendly users resulting in reduced budgetary & resource exploitation in convincing uninterested users also these companies deliver financial products & services to the financially underserved & unserved section of the society that is high in masses in developing nations (Slazus and Bick, 2022; EY, 2016). Users with less financial literacy can also use FinTech services,

so it has the potential to serve the unbanked population that has low financial literacy (Setiawan et al., 2021). The growth & development of FinTech Services has greatly influenced individuals' day-to-day life as services like online mobile payment, e-wallets, InsurTech, TradeTech, cryptocurrencies, etc. have made financial transactions, effortless & scalable for them (Osman et al., 2021).

FinTech offers a wide range of benefits to its users, still, it is an alien term for a large section of the nation even if they know then also, they restrain to use and it is because of various factors that affect users' behavioral intention while adopting technology-enabled financial Services (Singh et al., 2021).

According to Indian Ambassador Taranjit Sandhu, "Uttar Pradesh is destined to become a powerhouse of India, with a population of 240 million it is the most populous state". Also, over the past four years, Noida and Greater Noida (districts in Uttar Pradesh) have become preferred locations for establishing Uttar Pradesh financial technology (FinTech) companies (Express News Service, 2022). UP government has also signed a MoU with a US-based fintech firm for investing 500 crores for setting up its operations in Lucknow and Noida.

Therefore, the present research aims at contributing to the literature by employing extended TAM to examine PU, PEOU, GI & S as the factor influencing users' intention to use FinTech Services in Uttar Pradesh. However, there are past studies that have addressed the adoption of a particular type of FinTech Services like Mobile payments, Online Banking, etc. but there is very fewer literature as per our knowledge that is conducted in India and addressed FinTech Services adoption as a whole. And absolutely no research that is conducted in Uttar Pradesh and attempted to assess the users' intent towards FinTech services usage.

Since "Uttar Pradesh favored destination for Fintech companies" (News Desk, 2022) and also there is an excessive rise in the number of FinTech users in Uttar Pradesh so there is a need to explore more on this topic as it will enable FinTech service providers & system developers to better understand the users' attitudes & perceptions towards using such services so that they can propose solutions and design services to retain users' and also attract potential consumers. Therefore, this study attempts to bridge the gap by tackling this issue.

Hence, the rest of the paper is presented in various sections, where Section 2 outlines the prior works of literature that were reviewed based on FinTech services, TAM constructs (PU & PEOU), Security & GI as additional constructs, Intention to use FinTech services and accordingly conceptual research model and hypothesis were developed & framed. Section 3 explains the methodology used in the study involving questionnaire preparation, data collection & scale reliability are explained. In section 4, the result of the study is presented and section 5 comprises findings & discussions. Section 6 concludes the research work while sections 7 and 8 contain the implications, limitations & future research scope.

BACKGROUND & HYPOTHESIS FRAMING

FinTech Services

FinTech is the portmanteau of Financial Technology, which refers to an organization or a firm that delivers financial services & products with the employment of technology and their main goal is to grab the attention of consumers by offering convenient products, easily accessible & efficient services as compared to traditional financial services (Susilo et al., 2019). As per Financial Stability Board (FSB), "FinTech is technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services". Basically, it refers to a financial processing unit that facilitates the nation's financial sector in providing efficient customer care and assistance by using technologically-equipped methods (Gupta and Agrawal, 2021).

Theoretical Background

For assessing users' adoption intention and behavior towards a technology, prior studies have adopted several theories like TRA, UTAUT, TPB, etc. but among all TAM is most widely adopted by researchers to understand consumers' adoption & usage intent towards a technology or system. Theory of Reasoned Action (TRA) is the base model of TAM, which was originally designed for examining IBM employees' acceptance of word processor technology (Patel and J. Patel, 2017).

Previous works of literature have correlated FinTech services adoption with various theories but TAM is extensively used by past studies (Susilo et al., 2019; Slazus and Bick, 2022; Chong et al., 2010, Cheng et al., 2006) while conducting research that is concerned with the adoption of FinTech Services and its related fields. Therefore, since TAM has been enormously backed by empirical findings so the present study has used TAM as the base model to examine the factors that affect the users' intention to adopt FinTech Services in India with special reference to selected districts of Uttar Pradesh.

Framing hypothesis for the proposed model

As TAM has enormous empirical and pragmatic support from prior studies so in this study TAM is used as our foundation model. However, in the initial model of the Technology Acceptance Model Davis (1989), only PU & PEOU were used as the predictor variable and Behavioural Intention (BI) was the outcome variable but in the present research, we have used TAM as the base model and augmented it by adding two more independent variables namely, Government Influence (GI) & Security (S). Also in the original model, the attitude was included as it mediates the relationship of PU & PEOU with behavioral intention but recent works of literature have excluded it since it does not mediate the relation of PU & PEOU with behavioral intention (Patel and J. Patel, 2017). So, in this study, attitude is not included in the model.

Therefore, we have utilized the original constructs of TAM which are PU & PEOU but also added GI & S, considering that they are crucial for users' intention to adopt FinTech Services in India. So, we assume that the present study will be a literature contribution to the augmented Technology Acceptance Model by using GI & S along with the actual constructs of TAM for examining whether PU, PEOU, GI & S influence users' intention while adopting FinTech Services. Table 1 presents the prior studies that administered the same association. Figure 1 shows the conceptual model of the study.

Figure 1: Conceptual Research Model
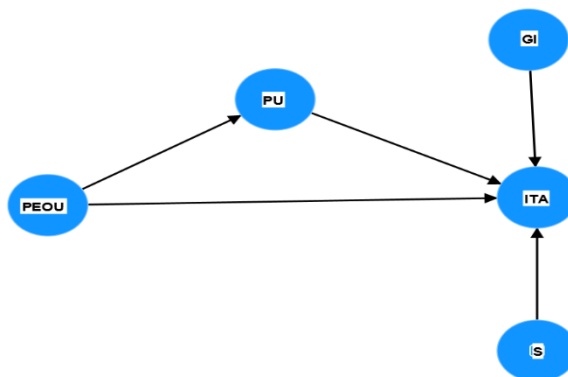
Government Influence (GI) & Intention to Adopt (ITA) Financial Technological Services

The government of any nation plays an important role in developing its FinTech Sector, as it frames laws & regulations that help the FinTech sector to grow & develop (Setiawan et al., 2021), facilitate users with the proper infrastructure needed, and also promote it among its citizens by making them aware about the benefits of such services. The government efforts would encourage individuals. So, government influence is an important factor that affects users' intention to use Technology-enabled Services as studied by prior researchers (Chong et al., 2010; Hu et al., 2019; Osman et al., 2021) while Setiawan et al. (2021) found that there is the insignificant influence of GI on users' intention. The present study hypothesizes that:

H1: GI positively influences users' ITA FinTech Services.

Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and Intention to Adopt (ITA) FinTech Services

As per Liébana-Cabanillas et al. (2014), the Perceived Ease of Use refers to users' perception that adopting a particular technology requires no or very less effort. Users are expected to use FinTech services if they believe them to be user-friendly, easy to use, & less complicated (Patel & and J. Patel, 2017). While Perceived Usefulness (PU) is the degree to which a user's

subjective probability that adopting a certain technology will result in his/her improved job performance (Venkatesh and Bala, 2008). And Intention to use refers to the user's intent to adopt, in contrast to their actual use of FinTech services (Cheng et al., 2006). PU & PEOU are considered the prime constructs that are capable to influence users' intention to use any technology (Davis, 1989). Therefore, in the present study, we examined the association of PEOU with users of ITA FinTech Services with PU as a mediating variable, as PU is a crucial factor in technological usage (Setiawan et al., 2021). Hu et al. (2019) found that PEOU has a significant impact on PU while Patel and J. Patel (2017) concluded that PEOU has a significant impact on Users' intentions. On the contrary, Setiawan et al. (2021) & Chong et al. (2010) found that PEOU had an insignificant influence on users' intentions. Cheng et al. (2006) & Setiawan et al. (2021) revealed that the relationship between PEOU and Users' intentions is mediated by PU. So, based on prior literature, the hypothesis was framed as:

H2: PEOU has a significant positive impact on users' ITA FinTech Services.

H3: PEOU is positively related to PU.

H4: The relationship between PEOU and users' ITA FinTech Services is mediated by PU.

Perceived Usefulness (PU) and Intention to Adopt (ITA) FinTech Services

PU is the users' perception to adopt or not to adopt certain technology to the extent that it will facilitate them to enhance their job performance (Davis, 1989). It is expected that users mostly prefer to use FinTech services if they find them to be more useful as compared to conventional financial services (Patel and J. Patel, 2017). Prior studies found that there is a positive correlation between PU and users' ITA FinTech services (Setiawan et al., 2021; Chong et al., 2010; Cheng et al., 2006; Patel and J. Patel, 2017). So, the hypothesis was developed as:

H5: PU has a significant positive impact on users' ITA FinTech Services.

Security (S) and Intention to Adopt (ITA) FinTech Services

Security & privacy is considered vital factor to make sure that the users' information is unavailable to suspicious or unauthorized consumers who can misuse the data (Ismail et al., 2018). Security issues like personal & financial data leakage, cyber threat, identity threat, etc. are the major issues that may negatively affect users' intention to use FinTech services (Osman et al., 2021). The study by Cheng et al. (2006) & Patel and J. Patel (2017) revealed that there is a strong impact of security on users' intentions contradicting this Chau & Ngai (2010) found that security is not a significant factor that

influences young users' intention to adopt fintech services. So, we hypothesize that:

H6: S positively influences users' ITA FinTech Services.

Table 1: Effects of the Proposed Relationships

ASSOCIATION	PRIOR LITERATURE
S→ITA	(Cheng et al., 2006), (Ismail et al., 2018), (Alwi et al., 2019), (Osman et al., 2021), (Patel and J. Patel, 2017)
GI→ITA	(Setiawan et al., 2021), (Chong et al., 2010), (Hu et al., 2019), (Osman et al., 2021)
PEOU→ITA	(Liébana-Cabanillas et al., 2014), (Daragmeh et al., 2021), (Setiawan et al., 2021), (Chong et al., 2010), (Patel and J. Patel, 2017)
PU→ITA	(Liébana-Cabanillas et al., 2014), (Daragmeh et al., 2021), (Setiawan et al., 2021), (Chong et al., 2010), (Cheng et al., 2006), (Patel and J. Patel, 2017)
PEUO→PU	(Daragmeh et al., 2021), (Hu et al., 2019)
PEOU→PU→ITA	(Daragmeh et al., 2021), (Setiawan et al., 2021), (Cheng et al., 2006)

METHODOLOGY

Data Collection

In the present study, we attempt to ascertain empirically whether constructs (namely, Government Influence, Perceived Usefulness, Perceived Ease of Use, & Security) influence users' intention to adopt FinTech Services. Further, we test the mediation effect of Perceived Usefulness between Perceived Ease of Use & Users' Intention to use FinTech Services. So, we constructed a research instrument consisting of five constructs, which are GI, PU, PEOU, S & ITA. All constructs excluding demographic variables were measured on a 5-point Likert scale (5 = strongly agree and 1 = strongly disagree) as used by Singh et al. (2021); Upadhyay and Jahanyan (2016) & Daragmeh et al. (2021) to assess users' intention towards technology-abled services. There were 22 items for 5 variables in the research questionnaire that were taken from past literature and further amended as per the need of our study. Before sharing the research instrument, a pilot study was conducted with 40 FinTech Users, to check the reliability of the statements of the questionnaire, and accordingly, modifications were made.

Further, the sample size of the study in case the population is unknown is the minimum number of indicators multiplied by 5 (Hair et al., 2014), there were 21 indicators in this study so the minimum sample size required is 105 respondents. So, we distributed questionnaires to 280 respondents and received 220 responses in total. After filtering invalid questionnaires consisting of missing & incomplete questionnaires, there were 209 valid responses, which is above the minimum required sample size. Overall, we

achieved a response rate of 75 percent, which is adequate & acceptable for the analysis. The data was collected through hybrid (online & offline) mode using a combination of convenience & snowball sampling and the target population of the study was FinTech Service users residing in four cities of India namely, Prayagraj, Noida, Lucknow & Varanasi. Microsoft Excel & SmartPLS 4 were employed for data analysis. Table 2 depicts the demographic profile of the respondents, in which 43.5 percent of the respondents were male while 56.5 percent were female. 18.2 percent of the respondents were below 25 years, 27.8 percent were between 25-40 years, 28.2 percent were between 41-55 years and 25.8 percent were above 55 years of age. Educational qualifications show that the majority of the respondents were graduated (34.4 percent) and post-graduated 49.3 percent) while 10.5 percent had intermediate degrees, 1.6 percent held Ph.D. degrees & above and 3.8 percent had any Diploma/ Professional Degree.

Table 2: Demographic Profile

GENDER	FREQUENCY	PERCENT (%)
Male	91	43.5
Female	118	56.5
Total	209	100.0
AGE		
Below 25 years	38	18.2
25-40 years	58	27.8
41-55 years	59	28.2
Above 55 years	54	25.8
Total	209	100.0
EDUCATION		
Intermediate	22	10.5
Graduation	72	34.4
Post-Graduation	103	49.3
Ph.D. & above	4	1.9
Any Diploma/ Professional Degree	8	3.8
Total	209	100.0

Source: Own survey.

Common Method Bias (CMB)

CMB, which is also known as common method variance or just method bias. Common method variance (CMV) is the systematic amount of fictitious covariation shared between various variables due to a similar method employed for the collection of data (Buckley, Cote, & Comstock, 1990). Since, all variables in the present study are measured using a common survey questionnaire so there might be chances of the presence of covariance among them (Malhotra et al., 2016). So, to address common method variance-related issues authors have used Harman's single factor test, which is a broadly employed method used for assessing CMB in a single-method research design (Podsakoff et al., 2003). Basically, in this test

Exploratory Factor Analysis (EFA) is done on all the items, and CMB is present if a single factor comes from unrotated factor solutions or a first factor ascertains that there are many variations in the variables (Podsakoff and Organ, 1986). It is widely accepted that if the result of a single-factor test is less than 50 percent of the variance, there are fewer chances of CMV (Daragmeh et al., 2021). The result of Harman's single factor of the study was within the acceptable range. Therefore, there is an absence of CMV in the study.

RESULTS

For testing the research hypothesis, SEM is applied in the study. It's a multivariate technique, that is the amalgamation of factor analysis and multiple regression. It facilitates the researcher to assess a string of interrelated dependence associations among the measured variables as well as the latent constructs and also between various latent constructs, all at the same time (Hair et al., 2015). Further, for estimating the parameters Partial Least Square SEM was employed. In the present study, SmartPLS 4 software is used for validating the research hypothesis. Data was examined in two steps, firstly measurement model was analyzed by assessing the construct validity & reliability of each construct and then the structural model was studied. The structural model also known as an inner model in PLS-SEM depicts the constructs and shows an association among the constructs while measurement models of the constructs also known as the outer model in PLS-SEM show the association among the constructs and the indicator variables (Hair et al., 2017).

Measurement model of the study

Firstly, we measured the reliability & validity of the research data. A reliable measuring instrument provides consistent and stable results (Kothari, 2004). As per Hair et al. (2019), indicator loadings of items more than 0.70 are regarded as within the acceptable range. Table 3 shows that every item of the data is within the acceptable limit. Moreover, Cronbach alpha and Composite reliability were measured for determining the internal reliability of the data. According to Daragmeh et al. (2021) & Fornell and Larcker (1981), Convergent reliability is more than 0.70 while Cronbach's alpha of more than 0.80 is the indicator of good internal consistency. And since the present variables have convergent reliability & Cronbach alpha above 0.70 & 0.80, so the data has good internal consistency.

Table 3: Construct reliability and validity

Constructs	Item Loadings	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)

Government Influence (GI)	0.923	0.929	0.939	0.687
GI1	0.775			
GI2	0.885			
GI3	0.904			
GI4	0.777			
GI5	0.862			
GI6	0.705			
GI7	0.875			
Intention to Adopt (ITA)	0.920	0.923	0.943	0.806
ITA1	0.863			
ITA2	0.892			
ITA3	0.915			
ITA4	0.921			
Perceived Ease of Use (PEOU)	0.878	0.879	0.916	0.733
PEOU1	0.838			
PEOU2	0.845			
PEOU3	0.869			
PEOU4	0.873			
Perceived Usefulness (PU)	0.895	0.897	0.934	0.826
PU1	0.922			
PU2	0.904			
PU3	0.901			
Security (S)	0.911	0.925	0.944	0.849
S1	0.944			
S2	0.914			
S3	0.905			

Source: SmartPLS 4 (v.4.0.8.6).

Validity is the extent to which a measuring instrument exactly and accurately depicts what it is needed to do (Hair et al., 2015). For assessing the validity of the present study, convergent and discriminant validity is used. The average variance extracted (AVE) is used to determine convergent validity. AVE above 0.50 or higher indicates that the construct describes 50 percent of variance and it is the acceptable range of AVE, and in Table 3 it can be seen that the AVE of all constructs is above 0.50. Further, discriminant validity is calculated to ensure that a constructed measure is unique and has no relation with other measures (Henseler et al., 2015). Firstly, discriminant validity was calculated as per Fornell and Larcker (1981), in which the AVE of each construct should be more than its correlation with other constructs.

Table 4: Fornell-Larcker criterion

	GI	ITA	PEOU	PU	S
GI	0.829				
ITA	0.627	0.898			
PEOU	0.503	0.698	0.856		
PU	0.469	0.716	0.747	0.909	
S	0.269	0.410	0.491	0.517	0.921

Source: SmartPLS 4 (v.4.0.8.6).

In Table 4, it can be seen that all constructs satisfy the condition, so DV is acceptable. Further, DV was calculated by using the Heterotrait-monotrait ratio (HTMT), which was suggested by Henseler et al. (2015) as they were against the Fornell-Larcker criterion. The threshold value required for structural models with similar constructs is 0.90 while for distinct constructs is 0.85 (Henseler et al., 2015). In Table 5, it can be seen that the values of all constructs are within the threshold range.

Table 5: Heterotrait-monotrait ratio (HTMT)

	GI	ITA	PEOU	PU	S
GI					
ITA	0.673				
PEOU	0.558	0.775			
PU	0.510	0.787	0.842		
S	0.287	0.443	0.545	0.566	

Source: SmartPLS 4 (v.4.0.8.6).

Structural equation modelling

SEM is a process used for assessing a sequence of interrelationships between a set of constructs expressed by various measured variables and merged into an integrated model (Malhotra and Dash, 2022). For evaluating the structural model of the study, the collinearity of the formative indicators was calculated using the Variance Inflation Factor, and VIF values of more than 5 suggest that there are major collinearity issues between the indicators of formatively calculated constructs (Hair et al., 2019).

Table 6: Collinearity statistics (VIF)

Constructs	VIF
Government Influence (GI)	
GI1	2.129
GI2	3.973
GI3	4.751
GI4	2.109
GI5	3.185
GI6	1.928
GI7	3.323
Intention to Adopt (ITA)	
ITA1	2.831
ITA2	3.161
ITA3	4.682
ITA4	4.839
Perceived Ease of Use (PEOU)	
PEOU1	2.088
PEOU2	2.140
PEOU3	2.672
PEOU4	2.686

Perceived Usefulness (PU)	
PU1	2.928
PU2	2.605
PU3	2.609
Security (S)	
S1	4.737
S2	4.004
S3	2.395

Source: SmartPLS 4 (v.4.0.8.6).

Table 6 shows that all VIF values are below the threshold limit so there are no collinearity issues. Further, for determining the explanatory power of the structural model, the value of R^2 i.e., coefficient of determination. is calculated. R^2 shows the variance that is explained in each of the endogenous constructs and R^2 values range between 0 to 1 indicating a high explanatory power (Hair et al., 2019). Table 7, it is observed that exogenous constructs can interpret 64.8 percent of the variance of the dependent variable i.e., intention to adopt, which is within the range and has moderate explanatory power.

Table 7: Values of R-square

	R-square	R-square adjusted
ITA	0.648	0.641
PU	0.558	0.556

Source: SmartPLS 4 (v.4.0.8.6).

After examining the explanatory power of the model, the next step bootstrapping process was carried out with 5,000 samples for testing the framed hypothesis of the study. In Figure 2, the results of the structural model are explained.

Figure 2: Structural results of the research model
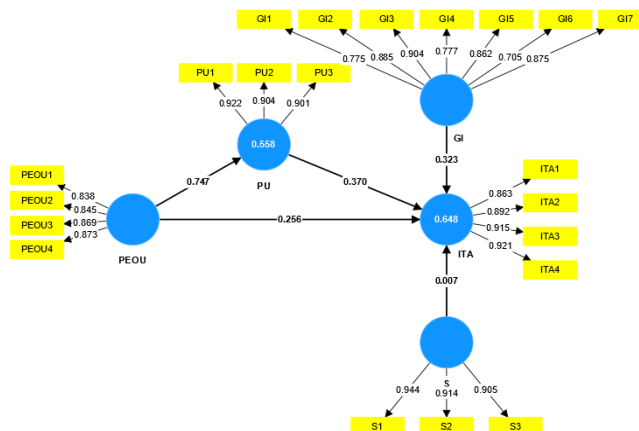
Source: SmartPLS 4 (v.4.0.8.6).

Table 8 shows the results of the hypothesis testing. In hypothesis 1, the effect of Government Influence (GI) on Intention to Adopt (ITA) is examined. Government Influence (GI) has a significant positive association with ITA (β = 0.323 & $p < 0.05$). Hence, hypothesis 1 is supported.

Hypothesis 2 studies the effect of PEOU on ITA while hypothesis 3 examines the effect of PU on PEOU. The result shows that PEOU has a direct significant positive association with ITA and PU ($\beta = 0.256$, $p < 0.05$ & $\beta = 0.747$, $p < 0.05$). So, hypotheses 2 & 3 are also supported.

Hypothesis 4 determines the effect of PU on ITA and PU has a significant positive association with ITA since $\beta = 0.370$ & $p < 0.05$. Therefore, hypothesis 4 is supported.

Hypothesis 5 examines the impact of Security (S) on ITA and results reveal that Security (S) has an insignificant positive association with ITA since $\beta = 0.007$ & $p > 0.05$. So, hypothesis 5 is rejected.

Hypothesis 6 assesses the association between PEOU and ITA Fintech Services as mediated by Perceived Usefulness (PU). It was found that PEOU has a positive indirect association with ITA mediated by PU with $\beta = 0.276$ & $p > 0.05$. Hence, hypothesis 6 is also supported.

Table 8: Hypothesis results

Relationship		Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
	Direct Effect					
GI -> ITA		0.323	0.321	0.058	5.556	0.000
PEOU -> ITA		0.256	0.256	0.072	3.534	0.000
PEOU -> PU		0.747	0.749	0.049	15.191	0.000
PU -> ITA		0.370	0.371	0.066	5.560	0.000
S -> ITA		0.007	0.003	0.053	0.126	0.900
	Indirect Effect					
PEOU -> PU -> ITA		0.276	0.278	0.056	4.969	0.000

Source: SmartPLS 4 (v.4.0.8.6).

FINDINGS AND DISCUSSIONS

Our study aims at examining the factors that affect users' ITA FinTech Services by validating extended TAM for understanding the users' intent toward FinTech Services. Each hypothesis concerned with the association among the variables is framed and validated through reliability testing and Structural Equation Modelling. The outcome of the research revealed that there is a significant positive influence of PU, PEOU & GI on users' ITA FinTech Services while S has an insignificant influence on the adoption intention of users. It was also found that PU mediates the relationship between PEOU & users' ITA FinTech Services which means that PEOU indirectly influences users' intentions via PU. So, Hypotheses: 1, 2, 3, 4 & 6 are accepted while H5 is rejected.

The survey outcome of the research reveals that GI has a significant association with users' ITA FinTech services as previously concluded by

Chong et al. (2010); Hu et al. (2019) & Osman et al. (2021). In the last decade, the Indian Government has been very active in promoting FinTech services among its citizens and also encouraged them to use FinTech services. Therefore, the government should implement proper laws concerning FinTech services, provide required infrastructures and ensure security & privacy to its citizens to protect them from cybercrimes & frauds.

Further, it was found that PEOU has a direct significant association with users' intentions and it is validated by the study of Patel and J. Patel (2017) but Setiawan et al. (2021); Chong et al. (2010) & Cheng et al. (2006) contradict our results as they found out that PEOU does not have a direct influence on users intention. However, the results of the initial Technology Acceptance Model also support our results. Since the FinTech service is a quite new concept for Indian users especially the users above 41 years of age who prefer to adopt those services that are easy to use, therefore the FinTech companies should offer user-friendly services that are easy to learn & use.

Similar to the results of Hu et al. (2019) & Daragmeh et al. (2021), our study has also identified that PEOU significantly influences PU. While PU mediates the relationship of PEOU with users' ITA FinTech services, our results are consistent with the results of past studies (Daragmeh et al., 2021; Setiawan et al., 2021; Cheng et al., 2006). It means that users find those services useful that are easy to use and hence, prefer to use them. Hence, there is an indirect relation between PEOU & users' intention that is mediated via PU, it implies that users want to put less effort into learning & using FinTech services.

Our results show that PU has a strong association with users' intention to use FinTech Services. Past studies (Setiawan et al., 2021; Chong et al., 2010; Cheng et al., 2006) validate our results. Since PU is a significant factor in determining users' intention to FinTech Services, service providers should let their users know about the various benefits offered by FinTech services in comparison with conventional financial services. Also, fintech companies should focus on promoting and enhancing their features and offer their users with latest innovative services so that they find them useful in their day-to-day life.

Our study found that there is an insignificant influence of security on users' intention to use FinTech Services. Chau and Ngai (2010) validate our finding as they concluded that security isn't a significant factor that influences young users' ITA mobile banking. While Ismail et al. (2018); Alwi et al. (2019) & Osman et al. (2021) contradict our result as they concluded that security & privacy positively affect users' intention to use technology-abled services. This contradiction may be because users find FinTech services more secure than conventional financial services. However, the FinTech service providers need to enhance the security & privacy issues and create awareness about it among their users to protect them from cyber fraud and ensure greater adoption of FinTech services.

CONCLUSIONS

The objective of the present study was to investigate the factors affecting users' intention to adopt FinTech services in India with special reference to four districts of Uttar Pradesh namely Noida, Prayagraj, Lucknow, & Varanasi. We attempted to investigate the direct & indirect impact of PEOU, PU, S & GI on users' ITA FinTech services. Statistical results of our research show that PEOU, PU, & GI have a strong positive impact on users' intentions while security has an insignificant influence on users' intentions. Moreover, the PU was found to be a mediator for the indirect influence of PEOU on Users' intentions. The augmentation of TAM by adding GI & S as an additional variable shows the theoretical input to the literature of factors affecting users' ITA FinTech Services & validating the Technology Acceptance Model (TAM) in anticipating users' ITA FinTech Services.

IMPLICATIONS OF THE STUDY

The present study has theoretical implications as the model framed in this research is an augmented form of TAM by affixing Government Influence & Security as additional constructs. Augmented TAM will facilitate researchers & academicians in better understanding & explaining factors affecting users' intent to adopt FinTech Services like mobile payment apps, digital lending services, etc. Also, the outcome of the research will facilitate FinTech service providers & system developers to design & deliver services that are as per the preference of the consumers, easy to use, secure, and can also consider various factors that influence users' intention towards FinTech services.

The present research validates that Government Influence is a significant determinant that influences users' intent towards FinTech services in Uttar Pradesh, this suggests that Indian Government should frame effective laws and regulations concerning FinTech services to protect the interest of FinTech adopters. Also, Government should provide the proper infrastructure like proper internet services, smartphones, etc., and organize FinTech literacy and awareness programs so that more and more individuals can adopt it.

Further, PEOU & PU are also significant predictors while examining users' intent toward FinTech services so FinTech system developers & service providers should provide users' websites & applications interfaces that can be easily operated, adaptable & convenient for users. They should also provide proper steps or videos on how financial transactions can be carried out on FinTech apps & websites. Also, FinTech service providers should upgrade & enhance their services by considering the feedback given by users so that users' needs & requirements can be catered to successfully.

This research found that security has an insignificant impact on users' intent towards FinTech services and this is because of the reason that users in Uttar Pradesh prefer to use FinTech services like mobile payment apps, digital lending apps, etc. over conventional financial services as they find them more secure and safe. But since prior studies show that security is the

key determinant of users' intent to adopt technology-abled services so FinTech service providers must ensure the security and privacy of their users against cyber frauds.

LIMITATIONS AND FUTURE DIRECTIONS

Our research has certain limitations the study was conducted only from the viewpoint of Indian users from several districts of Uttar Pradesh but the model used in our study can be applied by future studies for assessing users' intention to adopt technology-enabled services by other developing nations. We have used only Government Influence (GI) & Security (S) as an additional construct to Technology Acceptance Model (TAM) for evaluating users' intention to adopt FinTech services. Future studies can employ Perceived Risk, Subjective Norm, Quality of service, etc. as additional for assessing users' behavioral intention toward FinTech services. Also, they can use Age, Gender, etc. as moderating variables for studying their influence on users' behavioral intentions.

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ANALYSIS OF MBA SKILLS FROM THE EMPLOYERS' PERSPECTIVE: A CASE STUDY

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Abstract

The paper outlines the importance of distinguishing between different types of MBA programmes (professional and academic MBAs) and thus related outcomes. Furthermore, the paper presents a case study from Slovenia where we obtained the data crucial to adapt the MBA curriculum to employers' requirements. The research was conducted to offer a new MBA program in Slovenia by GEA College - Faculty of Entrepreneurship. The most significant discrepancy has been recognised in interpersonal, leadership, and entrepreneurial skills. Emotional intelligence and empathy are proposed directly by employers as essential for the manager's job. Our results confirm some existing research in this area. The importance of the study is seen as a good practice. Moreover, findings are beneficial for leaders in education, especially for MBA programme managers: to enhance their programme relevance, adopt more innovative ways of designing and delivering courses, and as a good starting point for further extensive research of the MBA skill gaps in Slovenia. The latter is very important, as our study was limited to *GEA College's* business partners.

Key Words

MBA; MBA skills; MBA curriculum; soft skills; case study.

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INTRODUCTION

The Master of Business Administration programme (hereinafter MBA) created in the USA was established on market needs. Its advantage (compared to other programmes) has been in its practical value and employability of MBA graduates. In the 1960s, MBA studies entered the European market, where most schools followed the U.S. example of Harvard Business School (Dhoul, 2019). Knowing that European higher education stands on a very different predisposition, the question arises, how do the higher educational institutions implement MBAs and what types? Furthermore, changing the organisational environment puts educational institutions that educate executives and leaders in an unenviable position since an MBA, as Tan and Ko state (2019, 64), "holds the promise of systematically preparing its graduates for their managerial roles". Nowadays, some authors (Navarro 2008; Blass and Weight 2005; Wensley, 2005; Mintzberg, 2004) criticise MBA programmes for their relevance, value, and overall quality. Some professionals and researchers perceived the gaps between the skills the MBA curriculum attempts to impart and those managers need while on the job. (Kumar and Jain, 2010; Kamal, 2020; Passarelli et al., 2018). Emphasis on hard skills over soft skills is considered to be a disadvantage of current MBA degree programs (Cruz and Wood, 2015; Mintzberg, 2004). Accordingly, a constant process of harmonising programs with the labour market requirements is necessary. Mintzberg's (2004) viewpoint is that since management is deeply embedded in everyday living practices, educators should focus on developing managers who are deeply embedded in local life.

GEA College – Faculty of Entrepreneurship from Slovenia (hereinafter GEA College), in cooperation with the University of New York in Prague, has outlined the implementation of the MBA program in Slovenia in the year 2021. In addition to the preliminary literature review, the purpose was to research what kind of education the MBA program represents in the EU and to research the market to align the MBA curriculum to employers' needs. The paper presents the skills gap perceived by GEA College's business partners, programme co-creators, and potential employers of future MBD graduates of the programme. The research shows a case study of how GEA College reviewed the market needs before establishing the MBA program and adjusted the curriculum accordingly.

Recognising the Need to Research What MBA Is in the EU

Among the first to help develop the original form of the programme known as the Master of Business Administration were American schools operating in the early 20th century: Wharton School of the University of Pennsylvania, founded in 1881, followed by The Haas School of Business at the University of California in Berkely, and Tuck School of Business at Dartmouth College. The first MBA programme was established at the Harvard Graduate School of Business Administration in 1908 to respond to the needs of the industry (Kaplan 2014; MBAcentral 2022). The programme started as an experiment

with 59 students and has become one of the most popular graduate degree programs in the U.S. (Herringto, 2010). During the 1950s to the 1960s, a significant internationalization of MBA occurred, beginning with Asia, Europe, and Africa. The programme entered the European higher education market through different business associations (Hull, 2000). Therefore European universities were initially reluctant to welcome the MBA (Alam et. al 2021, p. 1243).

Nowadays, the MBA is among the most internationally popular programmes and is globally present (Blass and Weight, 2005, p. 231). How many different MBA programmes there are in Europe is not known, since a joint European or world database on MBA programmes does not yet exist. The number can be estimated from different web pages for searching/ranking MBA programmes, such as MBA STUDIES, FINDMYMBA, STUDY PORTALS, MBA CENTRAL, MBA TODAY, QS Global MBA, etc. However, the numbers are not reliable, since institutions have to pay for their MBA program to be included in some of the registers and different methodologies used for rankings etc.

There are various variants of the programme on the market, a variety of specializations, a variety of study lengths, and modes of study: MBA programmes in International Business, Human Resources, Finance, Management, IT, Marketing etc. A three-year, a two-year, a one-year programme, and a mini MBA. Moreover, we have an opportunity to study MBA part-time, full-time, face-to-face, blended, or online.

Along with the growing popularity and rise of the MBA programme, accreditation agencies were established. The development of accreditation bodies in the UK and Europe was much more recent than in the USA and has been fuelled primarily by concerns about protecting the MBA brand (Lock, 1999). Among many, three accreditation bodies are today recognised as the most significant in the world: from the USA the American Assembly of Collegiate Schools of Business (AACSB), form the UK the Association of MBAs (AMBA), and form the EU the European Quality Improvement System (EQUIS) (Nassereddine, 2018). Programmes accredited by all three bodies are also known as "triple crown" accredited MBA programmes (FIND MBA 2022; MBA CENTRAL 2022; MBA TODAY 2022). There are many accreditation agencies from different parts of the world. However, no institution on a global or European level is in charge of what can be named the MBA.

Concerning the European Higher Education Area and Bologna Process (hereinafter EHEA)[1] and a three-cycle system: bachelor's (3 years), master's (2 years) and doctoral programmes (3 years), the question arises: what is the difference between the master's program in business and the MBA? "Technically, any Master's in the field of business administration can be labelled as an MBA since any education provider is free to label their Master's degrees in business as MBAs" (IESE, 2022). Is the MBA just

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[1] 29 European Ministers of Education, meeting in Bologna, signed the Bologna Declaration in 1999. The basic purpose of the declaration is to establish European higher education and the basis for a common path and cooperation for an open higher education area by 2010 (Zgaga 2004, 24).

another name for a master's program and master's degree? Some authors (Alam et al., 2022, 883) agree that there is no common understanding of whether it is a 'terminal degree' or customised training and should not be ideally considered as a Master's program'. Moreover, market changes have affected debates about the MBA's purpose and efficiency. Vaara and Fay (2011, 28) argue that there are critical issues in the ongoing debate about MBA programs: the outcomes of MBA programs, the inculcation of values and practices in the process, and self-regulation in the form of accreditation and ranking. The first issue (no more important than the others) is the primary concern of this paper, the knowledge and learning provided by MBA education. Many authors perceived the gap between the skills the MBA curriculum attempts to impart and the skills the managers need while on the job (Kumthe and Jain, 2010; Kamal, 2020; Passarelli et.al., 2018; Costigan and Brink, 2015).

Approaching this issue, the answer to this question has to be resolved: what is the difference between the Master's program in business and the MBA? Clearly, if any business program can be called an MBA, then there can be enormous differences. Originally, the MBA started out as an elite qualification for potential senior managers and leaders, minimum age and quantity of experience were the selection criteria. Nowadays, the market is flooded with a range of MBA programmes, offering different modes of delivery and specialisations, with some being accredited by national accreditation bodies, some by international/foreign accreditation bodies, and others by none (Blass and Weight, 2005, 229). Researching MBAs without proper classification and expected outputs adds confusion to the literature review. Blass and Weight (2005) state, »the MBA is positioned here as a qualification that is plagued by market confusion as to what it actually represents and what its value is«.

Concerning the European higher education system with 3 cycles, master's (2 years) are nationally recognised programs accredited by the national higher education accreditation agency[2]. Accreditation means that the operation of an institution or particular programme is authorised by a legal body: a government ministry or an accreditation or quality assurance agency (NUFFIC 2020, 27). Master's programmes (2nd cycle) are meant to continue academic studies after the Bachelor's (1st cycle) level. They last for two years, are credited with 120 ECTS[3], and can be delivered as full-time or part-time. We can consider it an academic MBA since the students can continue their education after their bachelor's without any work experience and acquire an academic master's degree upon successful completion. Teachers are also academics with habitations[4] since most national accreditation agencies in the EU have this prerequisite for programme accreditation. The prevailing teaching style is traditional (not necessarily); lectures are normally the leading teaching method, and the teaching

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[2] The European Consortium for Accreditation in higher education (ECA) is an association of recognised accreditation and quality assurance agencies in Europe.
[3] European Credit Transfer and Accumulation System.
[4] According to NAKVIS all teachers at the master level have to be habilitated, the minimum level is that of Assistant Professor.

language is a mother tongue since most national accreditation agencies have this prerequisite for programme accreditation (the right to study in the mother language). Students with a master's degree have access to the third level, PhD. In that manner, MBA is just another name for a master's program in business and a master's degree.

Another type of an MBA that can be found in the European and Slovenian higher education market[5] is a programme aimed at experienced professionals who want to acquire a strong foundation in business. Usually, programmes are not nationally recognised (depending on the national accrediting agencies' prerequisites concerning habitation, language, and other prerequisites) and require considerable full-time work experience from students. The teaching style is interactive and practically oriented. Most MBA programmes combine lectures, case studies, experiential teaching methods, project-based work, role games etc. The idea is to create an atmosphere with a group of students to learn from each other and mutually enrich the classroom experience (IESE, 2022). Teachers are professionals and experts from business (not necessarily habilitated academics) since "a training ground for managerial work requires establishing a priori a comprehensive understanding of the nature of contemporary managerial work and the associated work role requirements" (Rubin and Dierdorff, 2009). The teaching language is usually English since teachers are foreign professionals. It can be delivered in different varieties as a full-time or part-time, three-year, two-year or one-year MBA program, also called a mini MBA.

In this regard, we identified two types of MBAs, an academic MBA (a Master's program in business) and a professional MBA. However, a different typology could be made regarding other considered characteristics. There is no standard agreement on whether an MBA should be regarded as a 'Master's program' or a form of 'customised training' (Alam et al., 2022, 883). However, having identified two different MBA types, different answers to the questions will be provided: are the business schools' faculty trainers or teachers, are the business schools of learning or training centres, and should curricula be concentrated on theories or providing practical skills (Kamal and Kumar 2010, 71).

In Slovenian higher education the Ministry of Education, Science and Sport keeps a public record of all higher education institutions and study programmes accredited by the National Agency for Quality Assurance in Higher Education (hereinafter NAKVIS) which provides nationally recognized degrees (Gov.si, 2022). The MBA programme can have a Triple Crown, being accredited by AACSB, AMBA, and EQUIS. However, if NAKVIS does not accredit it, it is not nationally recognized. Potential MBA students have to examine the accreditations of desired MBA programs on their own. At the same time they must pay special attention to their lack of skills, desired study outcomes, and employer's expectations.

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[5] According to webpage research (year 2020), there are three institutions in Slovenia that are advertising MBA programmes: IEDC - Bled School of Management, University of Ljubljana - School of Economics and Business, University of Maribor - Faculty of Economics & Business.

Concerning the identified MBAs, the academic MBA (Master's programme in business) and the professional MBA, different outcomes are expected. Insofar as we really sum up the fundamental difference, the academic MBA equips the student with more theoretical knowledge and the professional MBA with practical skills. An MBA programme presents a conspicuous and systematic effort to equip individuals with the skills needed to manage people and organizations (Varela and Burke, 2013, 436). However, what are the professional MBA competency and skills requirements? Considering that a professional MBA prepares "students for future management roles in organizations, by providing them with a better skill in the understanding of business management and people" (Kowarski, 2019), we have to ask the employers. We have to bear in mind that beside the market demand other indicators can have an impact on MBA output as curricula content coordinated by the program manager (or academic director) or program structure and faculty expertise (Tan and Ko, 2019, 65). For example, Natarajan and Kumar (2014 in Buenviaje et al., 2016, 18) identified the most important problems for low employability among students aspiring to take up a career in Human Resources Management: lack of competent faculty and outdated curriculum, improper selection of students, lack of communication skills, and lack of industry-institute interaction.

Usually, the core MBA curriculum is built on finance and accounting, operations management, marketing, and strategy (Stoten, 2018). The studies such as The Skills Gap survey (Financial Times, 2018) and MBA Jobs & Salary Trends Report (QS TopMBA, 2018; QS TopMBA, 2021) show that employers are increasingly looking for soft skills. MBA employers rate soft skills as more important than hard skills to emphasize the ability to interact, communicate, and lead, which remains paramount to successfully moving organizations forward (Chisholm, 2021). Traditionally, the skill gap has been most pronounced in soft skill areas: communication, interpersonal, and leadership skills (QS TopMBA.com Jobs & Salary Trends Report 2018). Skills with the lowest satisfaction scores expressed by employers in the consulting sector are interpersonal, leadership and strategic thinking skills (Chisholm, 2021). Passarelli, Boyatzis, and Wei (2018, 57) state that emotional and social competencies, which represent the behavioural level of emotional intelligence are becoming very important for managers.

In order to equip managers with the needed skills for their career and success, understanding how MBA programs effectively foster competency development is critical for the future of management education (Passarelli, Boyatzis, and Wei, 2018; QS TopMBA 2018).

RESEARCH FINDINGS – MBA CURRICULUM ADJUSTMENT DATA

In 2021, *GEA College* tended to offer an MBA program (professional MBA) in the Slovenian higher education market. For this purpose, a case study with the following research question was designed: which skills do employers recognize as the most important for managers and to what extent

have their managers developed these skills? To answer the research question we gathered qualitative and quantitative data. Through a literature review we gathered the newest knowledge and studies about MBA programmes and skill gaps.

For collecting the quantitative data, an online questionnaire was used. The paper present researched skills gaps perceived by *GEA College* partner companies. The population in this case represents 285 companies[6], whom we see as co-creators of programs and potential employers of MBA graduates. The online questionnaire was conducted in January 2020 and was sent to all partner companies through the online survey tool 1KA. In the first phase, we asked company directors to assess the importance of the skills for the manager's job and in the second, the development of selected skills of their managers.

238 respondents participated in the survey[7]. 44.1% of respondents were men and 55. 9% were women. Participants were divided into four age groups: up to 20 years of age (1.3%), 21 to 40 years (26.1%), 41 to 60 years (61.8%), and above 61 years (10.9%). The largest group was a group of participants between 41 and 60 years. 18.9% of the participants come from micro companies, 19.3% from small companies, 30.3 % from medium companies, and 31.5% from large companies.

The next step during our research was to carry out a data analysis followed by the interpretation of the findings. The findings are significant for preventing skill gaps and aligning MBA curricula to the employers' needs. From the employers' point of view, the most important skills for managers are (see Table 1) interpersonal skills (4.73), leadership skills (4.69), and entrepreneurial skills (4.46). Male and female employers assess the competencies of managers with approximately the same importance. Only when assessing interpersonal skills, a statistical difference[8] is shown. Namely, male employers assess it (4.27) as more important than female employers (3.83). As the literature review showed our findings also support the fact that soft skills are essential for employers in the sample. Academic achievements (2.66), research skills (3.64), and IT/computer skills (3.92) are presented as less important for managers.

Table 1: Expressed level of Importance and development of skills

	Skills	Level of Importance for managers	Developed skills in employed managers
1	Interpersonal Skills	4.73	3.39
2	Leadership Skills	4.69	3.48
3	Entrepreneurship	4.46	3.27
4	Multilingualism	4.12	3.67

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[6] In 2020, there were 52011 companies in Slovenia. Observed companies: Micro enterprise (2-9) Small enterprise (10-49) Medium enterprise (50-249) Large enterprise (250+), SURS classification, 2020 (SURS 2020).

[7] We have conducted the Kolmororov-Smirnov test, statistic shows (p>.0.5) that the sample of the test is not significantly different from a normal distribution. On this preposition in further statistical analysis, we used parametric statistical tests.

[8] SPSS, t-test (sig 0.032).

5	Finance Skills	4.11	3.34
6	E-Business	4.08	3.26
7	Relevant Experience	4.08	3.58
8	International Awareness	4.01	3.19
9	Marketing skills	3.99	3.21
10	It/Computer Skills	3.92	3.29
11	Research skills	3.64	3.16
12	Academic Achievements	2.66	2.60

The most significant discrepancy or skill gap (see Graph 1) has been perceived in interpersonal skills (1.34), leadership skills (1.21), and entrepreneurial skills (1.19). Results inform which skills MBA programme directors have to put more effort into. Skills that are most in line with what employers deem important and those with the smallest discrepancy are academic achievements (0.06), multilingualism (0.45), research skills (0.48), and relevant experience (0.50). There was no statistically significant difference between company groups and the skills gap and perceived gaps between men and women[9].

Graph 1: The skill gap between the importance and development of skills
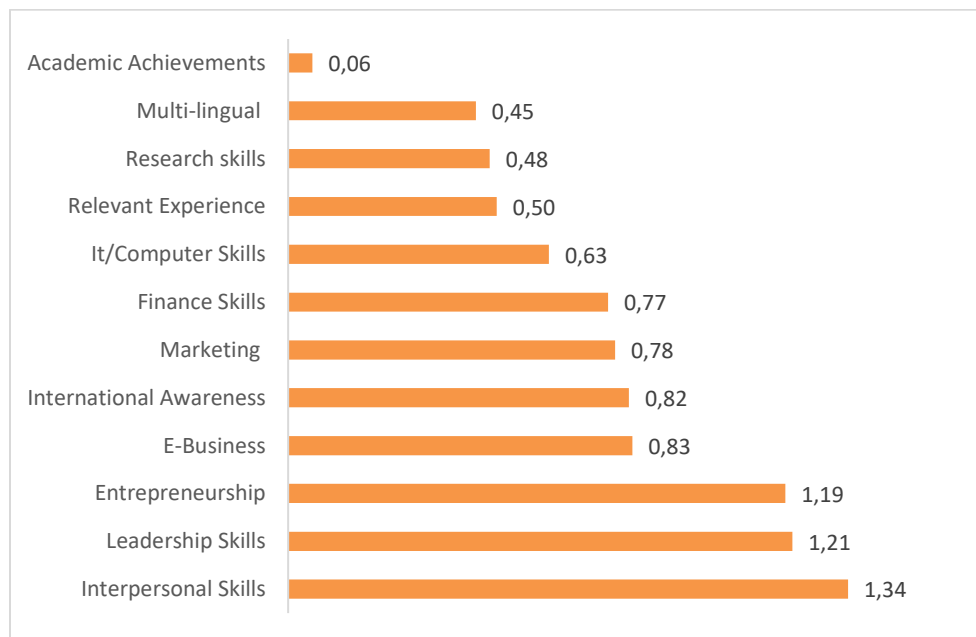
Through open questions in the survey, we investigated which skills that were not listed employers also perceive as significant for a manager's job. We got 16 answers. Respondents most often pointed to empathy and emotional intelligence as essential competencies.

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[9] SPSS, ANOVA, (p>.0.5).

Graph 2: Skills that were not listed, but perceived as significant
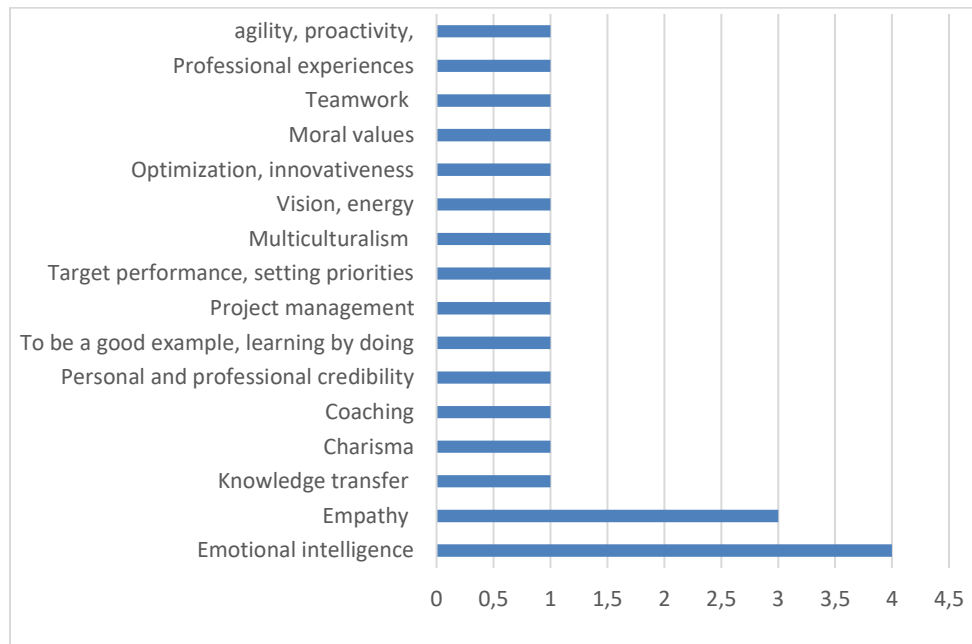
The findings of our research are also supported by the literature review and research of the Bloomberg Businessweek survey. Research results show that soft skill development is a priority now, both for MBA programmes and students (University of Northern Colorado, 2021). Further, research also shows that soft skills will continue to be relevant in the future. According to recruiters, the importance of interpersonal skills will only increase in the next five years. The greatest emphasis on interpersonal skills in the future is placed in Asia, followed by Europe and the USA (GMAC, 2020).

Furthermore, our research confirms that there is a lack of development of managerial skills among MBA programmes (Varela et al., 2011). The authors make a distinction between specific managerial skills (e.g. setting goals) and complex managerial skills (e.g. leading others, negotiating in intercultural contexts), whereas the latter is much more difficult to implement in MBA programmes. Based on our research, the most important skills for managers are interpersonal skills, leadership skills, and entrepreneurial skills - all of which can be classified as complex managerial skills. The authors give an example of one of AMBA's (2011) accreditation criteria ("Employers can expect graduates over time to […] have well-developed interpersonal skills"), where learning goals are not specific enough. They advocate for greater emphasis on learning goals tied to intermediate stages of skill development, that are operationalized with respect to measurable knowledge structures. We agree that soft skills segmentation should be structured and quantifiable, and this can also be a challenge for future research.

Similar results can also be observed from the research evaluating MBA programmes in the Czech Republic from the perspective of employers. A

quantitative survey was conducted among 127 HR managers to identify the value of the MBA as perceived by the employer. The sample included micro, small, medium-sized, and large organizations. Results have shown that micro-organizations have the greatest expectations for the acquisition and development of hard skills by their employees.

Also, micro and small organizations are not interested in the personal development of their employees. On the other side, the development of soft skills, especially leadership, is an important factor for large organizations. Results have shown that large companies strongly require the development of managerial skills, especially leadership skills to be developed as an outcome of MBA programmes (Balcarova et al., 2016). The great importance of leadership skills among soft skills was also highlighted in our study. On the other hand, we did not find any significant differences between employers' preferences regarding hard and soft skills in relation to the size of the company.

Our study further confirms the results of the integrative literature review on employability and skill gap at the post-graduate level of management education (MBA and Post-graduate Diploma in Management - PGDM) in India (Bhatnagar, 2021). The study on 19 relevant selected papers, published from 2012 to 2019 in India, found that soft skills and non-technical aptitudes should be emphasised in MBA education. Organisations also seek other attributes that are associated with employability, such as communication, emotional intelligence, critical thinking, problem-solving skills and interpersonal skills. In our study interpersonal skills have shown the most significant discrepancy or skill gap and emotional intelligence and empathy are proposed directly by employers as essential for the manager's job.

In addition, Bedwell et al. (2014) highlighted interpersonal skills as crucial in today's business environment. Research in the field of integrating interpersonal skills into the MBA classroom has shown that executives consistently rank interpersonal skills as crucial for a successful workforce. Results suggest that students must acquire effective interpersonal skills before entering the workforce, as well to use the science of training as a stepping-stone to facilitate instructors' integration of interpersonal skills into existing MBA courses. The authors also presented some example teaching tools to help integrate interpersonal skills teaching within existing courses. Furthermore, the authors warn that there must be an understanding of exactly what constitutes interpersonal skills effectiveness. Authors based their research on a scientifically rooted taxonomy (Klein et al., 2006).

CONCLUSION

An MBA program should be specifically designed to add value to candidates in the context of practical/applied business knowledge and leadership skills. As the business environment of organizations in the global world is changing rapidly, and so are the operations of organizations themselves, key skills that MBA graduates need, have to be identified. The paper presents a case study

of research data needed to adapt the MBA curriculum to employers' requirements in order to offer the MBA programme at GEA College, in cooperation with UNYP. The relevance of researching the skill gap is supported by an escalating criticism that MBA programmes are losing their significance and that competencies indicated by managers to be most critical are least represented in core MBA curricula (Tan and Ko, 2019, 64). The biggest discrepancy has been recognized in leadership, interpersonal skills, and entrepreneurial skills. Emotional intelligence and empathy are proposed directly by employers as essential for a manager's job. Findings support the literature review since many authors acknowledge the very importance of soft skills.

Accordingly, the research outlines the importance of distinguishing between different types of MBAs (professional MBAs and academic MBAs) in Slovenia and thus related outcomes. Much confusion in the European higher education market concerning the MBA is observed. It seems that more and more MBA programmes are being created without a common direction and definition of what an MBA programme is or what it should be. As some authors observe (Alam et al., 2021, 1250) a large number of programmes and the confusion about what an MBA programme is can lead to circumstances where MBA programmes become just money-making machines.

Findings allow us to adopt more innovative ways of designing and delivering the MBA courses enabling us to acquire soft skills and to add some relevant subjects based on the results derived from *GEA College's* partner organizations.

The results of the study are confirmed by some existing research, e.g. (Varela et al., 2021, Balcarova et al., 2016; Bhatnagar, 2021; Bedwell et al., 2014) and open up new dimensions in the exploration of soft managerial skills. The importance of the study is seen as good practice, the findings of this study are useful for programme managers, so that they are able to enhance their programme relevance and as a good starting point for further extensive research of the MBA skill gaps in the Slovenian higher education market. The latter is very important, as research was limited to *GEA College's* business partners only.

RECOMMENDATION FOR FUTURE RESEARCH

Research should be expanded, suggesting checking the survey results through a quantitative survey of a broader sample of employers in Slovenia, thus increasing the representativeness of the findings. A quantitative survey on a wider sample would be very useful and would show the possible significant differences between employers' preferences regarding hard and soft skills in relation to the size of the company.

Conducting qualitative methods of getting data (in-depth interviews, focus groups) among employers should also be considered. Nonetheless, qualitative data would give us a deeper insight into the topic and a better understanding. It would be necessary to segment each soft skill in order to

systematically plan the progress of MBA students' competencies. Similar scientific taxonomy as used by Klein et al. (2006) for interpersonal skills, could be used. Such research would produce a systematic model of soft skills and their sub-skills, which could further lead to a competency model of soft skills for MBA students.

We further assume that the results differ between countries or regions. Some research has shown the difference between soft skills perception in different parts of the world, e.g. Asia, the USA and the EU (CMAC, 2002). From this point of view, it is necessary and reasonable to investigate the factors influencing these differences.

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A BAYESIAN ANALYSIS OF DETERMINANTS OF NET INTEREST MARGINS OF COMMERCIAL BANKS IN VIETNAM

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Abstract

The current article investigates the impact of bank-specific and macroeconomic factors on the net interest margin (NIM) of commercial banks in Vietnam. In order to explore the association, we performed Bayesian linear regression on a dataset of 24 banks from 2008 to 2020. Our research result reveals that bank size (LNSIZE), profitability (ROA), operational cost to operating income ratio (BOPO), loan-to-deposit ratio (LDR), and non-performing loan ratio (NPL) of a bank positively affect the NIM of banks. On the contrary, bank liquidity (GWM) and loan market power (MPR) negatively affect the NIM of banks. Moreover, we suggest that macroeconomic factors, including GDP growth (GDP) and M2 money supply growth (M2), have a negative impact on NIM. Furthermore, the impact of the inflation rate (INFL) on NIM is relatively low. Our article highlights new information that improves the understanding of the NIM of banks in emerging economies like Vietnam.

Key Words

Commercial banks; net interest margin; Bayesian linear regression; Vietnam.

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INTRODUCTION

A commercial bank is a financial intermediary operating for profit. In particular, a commercial bank provides financial services to customers and collects fees and charges interest from the provided services to create profits (Asmar, 2018; Khoa et al., 2022). Moreover, a commercial bank acts as an intermediary for transferring capital from overfunded to underfunded places through deposit mobilization and lending to customers (Tarus, Chekol, & Mutwol, 2012). Commercial banks are the main pillars of maintaining a stable economic and financial system, particularly in developing countries, where bank loans are vital for development (Rudhani & Balaj, 2019; Tran, Nguyen & Duong, 2022). Therefore, the performance of banks is a key influencer of the economic and financial stability of any country. Rapid technological advancement, the introduction of new financial products, and the trend of globalization have increased the size and complexity of banking institutions (Moch, 2018). Furthermore, regulators have advocated the creation of larger and more complex institutions by encouraging other banks to acquire failed banks to limit the negative consequences during crisis (Barth & Wihlborg, 2016). Although banking institutions have become more complex, performance is still the main driver of their operations. NIM is an indicator reflecting the bank's performance, which is measured by the difference between interest income and expenses payable to bank investors. However, in order to achieve the profit target, commercial banks can increase the lending rate and reduce the deposit rate. However, this will make it difficult for individuals and enterprises that need capital to have access to unemployed capital and reduce the customer's debt repayment ability.

Additionally, in the context of complicated and prolonged pandemic development, business activities of individuals and enterprises become more difficult, resulting in a reduction in their debt repayment ability on schedule if they have to repay too much interest. Therefore, commercial banks have to reduce lending interest rates to support business activities as well as stimulate economic development. The income of the majority of banks comes from credit extension activities, specifically lending activities. A reduction in lending rates will reduce a bank's income as well as deposit interest rates in order to ensure that the bank's operation is still profitable. If the deposit interest rates are too low, it will be difficult for commercial banks to mobilize unemployed capital from the public.

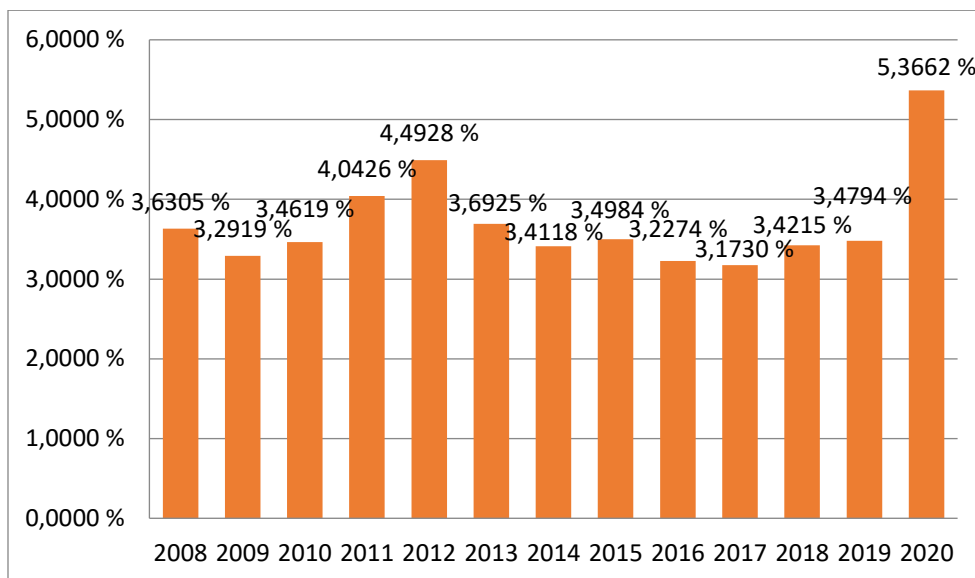**Figure 1:** NIM trend of Vietnam banks

Figure 1 illustrates that the NIM decreased slightly between 2008 and 2009 and increased slightly between 2009 and 2012. Then, NIM fluctuated insignificantly in value from 3.1730% to 3.6925% between 2013 and 2019 and increased significantly in 2019–2020. In particular, in 2008–2009, the impact of the Global Financial Crisis of 2008–2009 negatively influenced Vietnam's economy. The reduction in lending interest rates to a single digit in early 2009 and interest rate support policies made credit activities of banks become tightened, resulting in a reduction of interest margin from 3.6305% in 2008 and 3.2919% in 2009. In 2010–2012, the economy gradually recovered from the crisis through monetary and fiscal policy in a strict direction to control inflation and stabilize the government's macroeconomy, and signs of further improvement were observed in the activities of the banking industry. In 2010–2011, the high inflation rate led to an increase in the lending and deposit interest rates of commercial banks, which made the NIM of banks increase significantly to 11.9075% in 2011. In 2013–2019, the State Bank of Vietnam (SBV) issued decisions to reduce lending interest rates, market interest rates, and control inflation, such as Decision No. 2646/QD-NHNN 2012, Decision 643-NHNN 2013, Decision 1424/QD-NHNN 2017, and Decision No. 1870/QD-NHNN 2019. Meanwhile, those policies affected the NIM of commercial banks, which fluctuated around 3.41% on average. 2019–2020 was the period when the whole world, in general, and Vietnam, in particular, faced a health crisis. Particularly, the outbreak and prolongation of the COVID-19 pandemic made life and economic activities become worse. People's production and business activities became difficult. SBV issued Circular No. 01/2020/TT-NHNN stipulating that credit institutions and foreign bank branches rescheduled debt repayment terms, applied exemption or reduction in interests and fees, and kept unchanged debt groups to support customers affected by the COVID-19 pandemic. Although lending interest rates were adjusted down to support customers, such

adjustment resulted in a significant reduction in deposit interest rates, only 3–5% per year on average, which created a large difference, helping the operation of commercial banks in this period gain high profits. In particular, the average NIM of commercial banks increased markedly from 3.4794% in 2019 to 5.3662% in 2020.

The present article contributes to the existing literature in numerous ways. First, unlike previous studies, we investigated the factors affecting the NIM of commercial banks through the use of the Bayesian regression method. In contrast to the frequency school regression, Bayesian regression models utilize poor distributions allowing us to incorporate external knowledge into our research model (van de Schoot et al., 2021). Second, we utilized 24 Vietnamese banks from 2008 to 2020 to study the Vietnamese banking system. Therefore, the sample of the article is small (only 312 observations). In this case, the Bayesian regression method performs better than the frequency school regression models (Bui & Thach, 2023). Third, because we consider both bank-specific factors and macro factors to analyze their effect on NIM, we have an overview of the set of factors affecting NIM and the effect of each factor on NIM. Our findings will assist bank managers in providing appropriate strategies to increase the NIM for banks in the context of Vietnam. Besides, the results of the present paper are reference material for researchers in this field.

The rest of the current article is structured as follows. Section 2 briefly presents the literature review. Section 3 describes the dataset, the experimental data, model, and method and provides some summary statistics. Section 4 presents and discusses the research results. Finally, Section 5 summarizes the main conclusions.

LITERATURE REVIEW

NIM is a measure of the performance as well as the profitability of banks (Kumar, 2014). NIM is calculated by subtracting operating expenses from gross income (Ben Khediri & Ben-Khedhiri, 2011). From the perspective of industrial organizations, the difference between the price of bank intermediation and the cost of its output represents the bank's interest profitability covering the cost of intermediation. Bank-specific factors, information premiums for evaluating and monitoring investments, market structure, and risk management premium should all be reflected in the margin. NIM is a metric summarizing a bank's net interest rate of return on its core borrowing and lending activities (Khoa et al., 2022). NIM indicates the ability of the board of directors as well as the bank's staff to maintain the growth of revenues in comparison with the increase in costs (Sarwar, Muhammad, & Zaman, 2020). The change in NIM assists bank managers in making reasonable investment decisions by assessing the received income rate and the costs incurred. From an economic aspect, a higher NIM indicates that the banks are operating more efficiently, controlling payable costs more strictly, and managing profitable properties better. Hence, banks earned high profits, helping them to increase competitiveness in the market

as well as limit risks when the macro environment fluctuates. Additionally, from a social aspect, when the NIM is high and banks make a lot of profits, bank borrowers suffer from high interest rates, resulting in numerous difficulties in production and business activities and limiting the development of the economy.

The starting point of the factors affecting the bank's NIM may be the dealership model proposed by Ho and Saunders (1981). In the dealership model, Ho and Saunders (1981) considered banks as intermediaries between borrowers and lenders in the financial market. In order to analyze the determinants of bank profitability, the model proposed by Ho and Saunders has been extended by other researchers to consider the determinants of the bank's NIM in various countries and regions worldwide. Most studies divide the determinants of the bank's NIM into two main groups: the first is the group of bank-specific factors, and the second is macroeconomic factors.

Bank-Specific Factors

Bank Size
Bank size is measured in different ways, such as total assets, number of employees, number of customers, number of branches, customer deposits, and capital base. When evaluating the effect of bank size on the NIM of the bank, there are 2 groups of different views. According to resource-based theory, organizations with strategic resources have a competitive advantage over other organizations (Barney, 1991). Strategic resources are characterized by specific attributes, including essential resources that can enhance the performance of an organization and repel threats to its development, in addition to resources that the competitors cannot imitate, known as limited or irreplaceable resources. In light of this, Raharjo, Hakim, Manurung, and Maulana (2014) found a positive effect of bank size on NIM. The second group believes that the larger the size of assets, the lower the NIM because the higher the total assets, the less flexible, rigid, and bureaucratic it becomes, reducing the NIM of the bank. This research group received the support of Lestari, Chintia, and Akbar (2021), Khan and Jalil (2020), Hussain (2014), and Gul, Irshad, and Zaman (2011). They detected a negative effect of bank size on NIM. However, Pham, Tran, and Vo (2018), Megawaty and Ugut (2022), and Hanzlík and Teplý (2022) found that bank size did not affect banks' NIM.

Profitability
Bank profitability is a key indicator of bank performance. It represents the return rate a bank has been able to generate from using the resources at its command to produce and provide services. Raharjo et al. (2014) observed the factors affecting the NIM of banks and detected that the profit margin was remarkably affected by the bank's profitability. Moreover, Endri and Marlina (2020) revealed that banks with high profitability have high NIM.

Operational Cost to Operating Income Ratio

The operating expenses to gross income ratio capture the bank management's efficiency showing the number of expenses for every dollar of income the bank generates. In previous studies, Hanzlík and Teplý (2022), Sarwar et al. (2020), Pham et al. (2018), Khanh and Tra (2015), and Ben Khediri and Ben-Khedhiri (2011) indicated that operational cost to operating income ratio negatively affected NIM. Even so, Mustafa-Zatriqi and Ahmeti (2022), Lestari et al. (2021), Lee and Isa (2017), and Raharjo et al. (2014) found that operational cost to operating income ratio positively affected NIM. However, Islam and Nishiyama (2016), Khan and Jalil (2020), and Endri and Marlina (2020) demonstrated that the operating cost to operating income ratio had no effect on the bank's NIM.

Bank Liquidity
Liquidity is a measure of the available cash and other assets of a bank to quickly pay bills and meet short-term business and financial obligations. Raharjo et al. (2014) and Hussain (2014) revealed that liquidity negatively impacted the bank's NIM. On the contrary, Islam and Nishiyama (2016) demonstrated that banks with higher liquidity had higher NIM. Meanwhile, Mustafa-Zatriqi and Ahmeti (2022) and Megawaty and Ugut (2022) concluded that liquidity had no effect on the bank's NIM.

Loan-to-Deposit Ratio
The loan-to-deposit ratio (LDR) is the ratio between the bank's total loans and deposits. The ratio is generally expressed in percentage. If the ratio is less than one, this means the bank relies on its deposits to lend its customers without borrowing outside. On the contrary, if the ratio is more significant than one, this means the bank borrowed the money it lent back at a higher interest rate rather than relying entirely on its deposits. Banks may only make optimal returns if the ratio is high. Banks may need more liquidity to cover unforeseen funding requirements or economic crises if this ratio is too high. Mustafa-Zatriqi and Ahmeti (2022), Endri and Marlina (2020), Asmar (2018), and Raharjo et al. (2014) indicated that the loan-to-deposit ratio positively affected NIM. Studies by Hanzlík and Teplý (2022), Lestari et al. (2021), Islam and Nishiyama (2016), and Pham et al. (2018) demonstrated that the loan-to-deposit ratio and NIM had no relationship.

Non-Performing Loan
A non-performing loan (NPL) is a loan that is not repaid because the borrower has not made scheduled payments within a certain period. While the exact elements of default can vary based on the terms of the particular loan, "nonpayment" is generally defined as nonpayment of principal or interest (Tran et al., 2022). Islam and Nishiyama (2016) illustrated that the non-performing loan ratio had no effect on the NIM. However, Mustafa-Zatriqi and Ahmeti (2022), Raharjo et al. (2014), and Tarus et al. (2012) detected a positive impact of non-performing loan ratio on NIM. On the contrary, Endri and Marlina (2020), Lestari et al. (2021), Khan and Jalil (2020), and Sarwar et al. (2020) demonstrated that the non-performing loan ratio negatively influenced NIM.

Market Power Ratio
Raharjo et al. (2014) found no evidence regarding the effect of loan market power on the NIM of banks. Meanwhile, the research results of Mustafa-Zatriqi and Ahmeti (2022), Khan and Jalil (2020), Islam and Nishiyama (2016), Khanh and Tra (2015), and Tarus et al. (2012) indicated that loan market power had a negative effect on the NIM of banks. In contrast, Sarwar et al. (2020), Lee and Isa (2017), and Hussain (2014) concluded that loan market power and banks' NIM had a positive relationship.

Macroeconomic Factors

Inflation
Inflation is used as a measure of macroeconomic stability, and it is computed by the annual consumer price index. Several pieces of literature have empirically examined the relationship between NIM and inflation. Some researchers demonstrated that an increase in inflation motivates bank performance and NIM. For instance, Hanzlík and Teplý (2022), Pham et al. (2018), Khanh and Tra (2015), Hussain (2014), Raharjo et al. (2014), Tarus et al. (2012), and Gul et al. (2011) found that the inflation rate positively affected the NIM. Notwithstanding, some literature reported otherwise. The negative impact of the inflation rate on NIM was noticed by Lestari et al. (2021) and Khan and Jalil (2020). This result implies that banks' performance and lending decrease when the inflation rate rises in an economy. However, the research results of Megawaty and Ugut (2022), Endri and Marlina (2020), and Islam and Nishiyama (2016) indicated that the inflation rate had no effect on NIM.

GDP Growth
The metric of gross domestic product (GDP) growth measures the economy's overall health. The results of the impact of this factor on NIM in previous studies are different. In previous studies, Hanzlík and Teplý (2022), Islam and Nishiyama (2016), Tarus et al. (2012), and Gul et al. (2011) found that economic growth had a negative effect on NIM. However, Megawaty and Ugut (2022), Khanh and Tra (2015), and Hussain (2014) found no evidence regarding the effect of GDP growth on NIM.

Money Supply
Monetary policy is the framework used by the Central Bank to perform its regulatory function to facilitate economic growth and stability (Nikhil & Deene, 2023). Monetary policy is determined by the relationship between the cost of borrowing money in an economy and the total amount of money available. Additionally, the Central Bank adjusts the interest rate and required reserve along with purchasing the country bond to control the money supply. The link between monetary policy and NIM has gained prominence recently, particularly after the 2008-2009 Global Financial Crisis. Khan and Jalil (2020) researched the role of factors and their impact on the NIM of banks in Pakistan and found that money supply growth and banks'

NIM had a positive relationship. Khan and Jalil (2020) explained that an increase in money supply resulted in more cash in the banks. Therefore, they increased lending, hence increasing their profits.

DATA, MODELS, AND EMPIRICAL STRATEGY

Dataset

We gathered secondary data on the variables at the bank level from audited consolidated financial statements of 24 joint-stock commercial banks from 2008 to 2020. In 2008–2020, we eliminated banks involved in mergers and acquisitions (M&A) events because the data of these banks were volatile and heterogeneous, thus distorting the estimation result. In addition, banks with incomplete data in 2008-2020 were removed from the sample. We tested outliers before estimating the model. Due to outliers, errors decreased, and the generalizability of the results was enhanced. Therefore, the final data included 312 observations of 24 joint-stock commercial banks in 13 years. Meanwhile, annual data on macroeconomic variables were obtained from the World Development Indicators of the World Bank.

Models

In order to examine the effect of factors on the bank's NIM, we first consider the bank-specific factors affecting the bank's NIM as follows:

$$NIM = \alpha_0 + \beta_i BSF_i + \varepsilon . \qquad (1)$$

Next, we add macroeconomic factors to equation (1) in order to examine the effect of these macroeconomic factors on the NIM of banks. Therefore, equation (2) has the following form:

$$NIM = \alpha_0 + \beta_i BSF_i + \gamma_j MF_j + \varepsilon . \qquad (2)$$

where α_0, β_i, and γ_j are the coefficients of determinant variables; ε is the error term; NIM is the net interest margin (dependent variable); BSF is a vector of bank-specific factors; and MF is a vector of macroeconomic factors. Bank-specific factors include bank size, profitability, operational cost to operating income ratio, bank liquidity, loan-to-deposit ratio, non-performing loan ratio, and loans market power of banks. Macroeconomic factors comprise inflation rate, economic growth, and growth of money supply M2. Details of the measurement of each variable based on the definition are given in Table 1.

Table 1: Research variables measurements.

Variables	Symbol	Measurements
Dependent variable		

Net interest margin	**NIM**	Interest earned minus interest payments divided by total assets
Independent variables		
Bank-specific variables		
Bank size	**LNSIZE**	The logarithm of bank's total assets
Profitability	**ROA**	Total net income over total asset
Operational cost to operating income ratio	**BOPO**	The ratio of operating expenses to gross income
Bank liquidity	**GWM**	Liquid assets over total assets
Loan-to-deposit ratio	**LDR**	Total loan to total deposit ratio
Non-performing loan	**NPL**	Non-performing loan to total loan ratio
Market power ratio	**MPR**	The ratio of bank loans at time t to total loans within the banking sector
Macroeconomic variables		
Inflation	**INFL**	Annual rate of inflation (%)
GDP growth	**GDP**	Annual growth rate of GDP (%)
Money supply	**M2**	Annual growth rate of M2 (%)

Empirical Strategy

Unlike previous studies using the frequency approach, we utilized the Bayesian approach, particularly Bayesian linear regression, in order to explore the factors affecting the NIM of banks in Vietnam. Bayes' theorem delineates an event's conditional probability based on data and previous information about the event or conditions associated with the event (van de Schoot et al., 2021).

Following the Bayesian view (Bayes, 1763), we built a Bayesian linear regression using a probability distribution of the following form:

$$y \sim N(\beta^T X, \sigma^2 I). \quad (3)$$

Here, *y* is formed from a normal distribution described by mean and variance values. The mean of Bayesian linear regression is the displacement of the prediction matrix multiplied by the weight matrix. The variance is the identity matrix multiplied by the square of the standard deviation (σ).

Not only is the output (*y*) formed from the probability distribution, but also the model parameters are also derived from the distribution. The posterior probability of the conditional model parameters based on the inputs and outputs has the following form:

$$P(\beta|y, X) = \frac{P(y|\beta, X)(P(\beta|X)}{P(y|X)}. \quad (4)$$

Here, $P(\beta|y, X)$ is the posterior probability distribution; $P(y|\beta, X)$ is the likelihood of a dataset; $P(\beta|X)$ is a prior probability distribution; and

$P(y|X)$ is a standard constant and can be eliminated. Therefore, equation (4) is often simplified as follows:

$P(\beta|y, X) = P(y|\beta, X)(P(\beta|X)$.   (5)

Bayesian regression will proceed through the following three steps when testing the hypothetical relationship between bank's NIM and explanatory variables. Firstly, we provide a prior assumption to have a normal distribution with a mean of zero for the total coefficients for the coefficients. Such a prior specification signifies that coefficients resulting from Bayesian regression are more likely to have values close to zero than non-zero values. Most importantly, we do not favor the Bayesian analysis results of research hypotheses in a negative or positive direction. Secondly, regarding the likelihood functions of the coefficients, we suppose normal distributions with the parameters obtained from equations (1) and (2). Finally, we employ Markov Chain Monte Carlo (MCMC) combined with Gibbs Sampling techniques to approach the corresponding posterior distributions of the coefficients by 12,500 withdrawal times of estimation and simulation drawn from a posterior distribution. As usual, we will have the first 2,500 withdrawal times removed. MCMC technique is frequently utilized for adjusting complex models in various fields (Gelman & Rubin, 1992; Roy, 2020).

RESULTS AND DISCUSSION

Some Facts

Table 2 presents descriptive statistics of all variables in the model. The main descriptive criteria comprise mean, standard deviation, and maximum and minimum value. The first is a group of bank-specific variables: banks' NIM in 2008–2020 had an average value of 3.7069%, the highest value of 49.1020%, and the lowest value of -1.2709%. The average total assets size of commercial banks is 18,3769, with the highest value of 21.1398 and the lowest of 14.6987. The average return on assets (ROA) ratio is 0.9640, with the lowest value of -5.9929 and the highest of 5.9518. The average of operational cost to operating income ratio is 0.7881, with the largest value of 86.3019 and the smallest of 0. Generally, the liquidity of commercial banks is quite stable, having an average value of 0.2099, a maximum of 1.2566, and a minimum of 0.0452. The loan-to-deposit ratio had an average value of 88.5189%, a maximum of 209.1146%, and a minimum of 23.5094%. Banks have an average non-performing loan ratio of 1,8092%, a maximum of 11,4017%, and a minimum of 0%. The loan market power of banks has an average value of 16.2057%, a maximum of 100%, and a minimum of 0.2116%. The second is a group of macroeconomic factors: Vietnam's inflation rate average is 7.222%, with the largest value of 23.115% (in 2008) and the lowest of 0.631% (in 2015). In addition, Vietnam had an average economic growth of 5.929%, a maximum growth rate of 7.076% in 2018, and a minimum growth rate of 2.906% in 2020. Finally, broad money growth had

an average annual rate of 18.5592%, a minimum rate of 11.94% in 2011, and a maximum rate of 29.71% in 2010.

Table 2: Descriptive statistics

Variables	Mean	Std. Dev.	Min	Max
Dependent variable				
NIM	3.7069	3.0509	-1.2709	49.1020
Independent variables				
Bank-specific variables				
LNSIZE	18.3769	1.2733	14.6987	21.1398
ROA	0.9640	0.8960	-5.9929	5.9518
BOPO	0.7881	4.8591	0.0000	86.3019
GWM	0.2099	0.1252	0.0452	1.2566
LDR	88.5189	21.0779	23.5094	209.1146
NPL	1.8092	1.4471	0.0000	11.4017
MPR	16.2057	22.2103	0.2116	100.0000
Macroeconomic variables				
INFL	7.2220	6.3870	0.6310	23.1150
GDP	5.9290	1.0570	2.9060	7.0760
M2	18.5592	5.5019	11.9425	29.7146

Table 3 presents the Pearson correlation matrix of the variables. It shows that NIM is negatively correlated with LNSIZE, BOPO, GWM, GDP, and M2, while other factors are positively correlated. Meanwhile, all absolute values of the correlation coefficients among the independent variables in Table 3 are less than 0.4, so multicollinearity does not appear in our study.

Table 3: Correlation matrix of the variables.

	NIM	LNSIZE	ROA	BOPO	GWM	LDR	NPL	MPR	INFL	GDP	M2
NIM	1.00										
LNSIZE	-0.02	1.00									
ROA	0.32	-0.04	1.00								
BOPO	-0.10	-0.07	-0.46	1.00							
GWM	-0.11	-0.23	0.09	0.07	1.00						
LDR	0.10	-0.10	0.21	-0.09	-0.14	1.00					
NPL	0.00	-0.02	-0.14	-0.04	-0.05	-0.09	1.00				
MPR	0.01	0.38	0.05	-0.04	-0.08	0.14	0.11	1.00			
INFL	0.02	-0.39	0.17	0.10	0.33	0.11	-0.07	-0.02	1.00		
GDP	-0.16	0.02	-0.08	0.02	0.02	0.00	-0.04	0.00	-0.08	1.00	

M2	-0.03	-0.35	0.19	-0.07	0.16	0.00	0.06	-0.02	0.19	-0.14	1.00

Estimation Results

Tables 4 and 5 display the results of our Bayesian linear regression. Table 4 presents the effect of bank-specific variables, while Table 5 presents the influence of bank-specific variables and macroeconomic variables on NIM. In order to describe an impact, we indicate a 95%-credible interval for coefficients, that is, an interval containing the parameter of interest with a certain probability.

Table 4: Regression of bank-specific variables on the NIM

Dependent variable: NIM				
Independent variables	**Posterior mean**	**Posterior probability**	**Efficiency**	**Rc**
LNSIZE	0.0933	0.9401*	1.0000	1.0001
	[-0.0230; 0.2106]			
ROA	1.2117	1.0000*	1.0000	1.0000
	[0.7994; 1.6170]			
BOPO	0.0484	0.9003*	1.0000	1.0000
	[-0.0250; 0.1225]			
GWM	-1.1504	0.9221**	1.0000	1.0001
	[-2.6873; 0.4436]			
LDR	0.0067	0.8166*	0.9836	1.0000
	[-0.0081; 0.0217]			
NPL	0.1286	0.8712*	1.0000	1.0000
	[-0.0943; 0.3526]			
MPR	-0.0054	0.7611**	1.0000	1.0000
	[-0.0204; 0.0097]			
constant	0.2766	0.6185*	0.9637	1.0000
	[-1.5832; 2.0925]			
var	8.3817	—	0.9305	1.0001
	[8.3458; 7.1397]			

Notes: 95% credible interval in brackets. *Probability of mean > 0. **Probability of mean < 0.

Firstly, we consider the effect of bank-specific factors on a bank's NIM. Tables 4 and 5 demonstrate that a higher bank size (LNSIZE) strongly affects the bank's NIM, with a probability that the bank size variable has a positive influence of 94.01% (Table 4) or 99.50% (Table 5). The posterior mean coefficient is β = 0.0933 or β = 0.1858. Our result demonstrates that the larger the bank's asset size is, the higher the NIM will be. Large banks have reputable brands and high confidence among customers and investors. They may invest in more contemporary technologies and have a competitive

advantage owing to scale, favoring scale efficiency. Thus, large commercial banks earn NIM more. Our result is compatible with that of Raharjo et al. (2014).

There is a probability that the profitability variable (ROA) positively affects the NIM of 100% (Table 4 and Table 5). The posterior mean coefficients are $\beta = 1.2117$ (Table 4) and $\beta = 1.2326$ (Table 5). Similar to the study by Endri and Marlina (2020) and Raharjo et al. (2014), we detected strong evidence regarding the positive influence of profitability on NIM. According to the results of this analysis, a high NIM is more attainable for a bank with a higher ROA. Bank profitability indicates the ability of banks to generate income exceeding costs in relation to the bank capital base. A high ROA of banks reflects that such banks have had reasonable policies and plans to make optimal use of assets in generating revenue, increasing profits, and at the same time helping NIM increase.

Our results demonstrate that the operational cost to operating income ratio (BOPO) positively affects the NIM. In particular, the mean coefficient of BOPO variable is $\beta = 0.0484$ (Table 4) or $\beta = 0.0505$ (Table 5). There is a probability that the BOPO variable has a positive influence of 90.03% (Table 4) or 90.64% (Table 5). The research result illustrates that the operational cost to operating income ratio has a strong and positive impact on the NIM. From 2008 to 2020, Vietnamese commercial banks modernized the banking system and administration following international standards. Banks also altered their operations for safety and health. Bank management and administration have become more professional, approaching global banking governance requirements. Our result agrees with the conclusions of Mustafa-Zatriqi and Ahmeti (2022), Lestari et al. (2021), Lee and Isa (2017), and Raharjo et al. (2014).

The mean coefficient of the GWM variable is $\beta = -1.1504$ (Table 4) or $\beta = -0.9291$ (Table 5), and there is a probability that the GWM variable has a negative effect of 92.21% (Table 4) or 87.39% (Table 5). The research result indicates that liquidity negatively impacts the NIM. For banks with high liquidity, public trust will be maintained, and liquidity risks are also limited. However, maintaining a high rate of liquidity also imposes a significant opportunity cost on banks and reduces their NIM. Our result is consistent with the conclusion of Raharjo et al. (2014) and Hussain (2014).

LDR variable has a mean coefficient of $\beta = 0.0067$ (Table 4) or $\beta = 0.0098$ (Table 5), and there is a probability that the LDR variable has a positive influence of 81.66% (Table 4) or 89.58% (Table 5). The research result demonstrates that the loan-to-deposit ratio has a strong and positive impact on the NIM. This result refers to the efficiency with which a bank can turn customer deposits into interest income, hence expanding its NIM. A high loan-to-deposit ratio results in greater conversion of customer deposits into loans, as observed by its positive effect on the NIM. As a result of this efficiency, the LDR may raise its NIM. Our result is in accordance with the conclusions of previous studies by Mustafa-Zatriqi and Ahmeti (2022), Endri and Marlina (2020), Asmar (2018), and Raharjo et al. (2014).

Similar to the studies of Mustafa-Zatriqi and Ahmeti (2022), Raharjo et al. (2014), and Tarus et al. (2012), we detected that the NPL ratio had a positive

and strong effect on NIM. In particular, NPL variable has a mean coefficient of $\beta = 0.1286$ (Table 4) or $\beta = 0.1482$ (Table 5), and there is a probability that the NPL variable has a positive influence of 87.12% (Table 4) or 90.01% (Table 5).

For the bank's loans market power variable, the mean coefficient of the MPR variable is $\beta = -0.0054$ (Table 4) or $\beta = -0.0078$ (Table 5). There is a probability that the MPR variable has a negative influence on the NIM of banks of 76.11% (Table 4) and 84.66% (Table 5). The research result demonstrates that the higher a bank's lending market power is, the lower the bank's NIM is. This result is similar to those of Mustafa-Zatriqi and Ahmeti (2022), Khan and Jalil (2020), Islam and Nishiyama (2016), Khanh and Tra (2015), and Tarus et al. (2012). As part of the roadmap to restructure the national financial system of the SBV, mergers and acquisitions (M&A) activities between large banks and inefficient banks have been strongly encouraged in recent times. When the number of players decreases, the market share is still in the hands of the four largest banks in Vietnam, namely, Vietcombank, Vietinbank, Agribank, and BIDV. Consequently, the government can quickly seize the industry and impose restrictions on the NIM.

Secondly, we consider the effect of macroeconomic variables on NIM. Consistent with previous empirical studies (Gul et al., 2011; Raharjo et al., 2014; Tarus et al., 2012; Hussain, 2014; Khanh & Tra, 2015; Pham et al., 2018; Hanzlík & Teplý, 2022), we found that the inflation ratio had a positive influence on NIM. Table 5 presents that the mean coefficient of the INFL variable is $\gamma = 0.0021$. Thus, the level of inflation, measured by CPI, had a positive effect on the NIM of the bank. This result implies that inflation was anticipated. Hence, the bank management had a chance to adjust interest rates accordingly, further increasing the spread between interest revenue and interest expense, leading to a positive effect on NIM. However, there is a probability that the INFL variable has a positive effect of 50.02%. The probability of this influence implies that the impact of the inflation rate on the NIM is relatively low.

For the economic growth variable, the mean coefficient of the GDP variable is $\gamma = -0.3026$. There is a probability that the GDP variable had a negative impact on the NIM of 98.09% (Table 5). The research result demonstrates that economic growth has a strong and negative impact on NIM. Our result is consistent with those of Islam and Nishiyama (2016), Tarus et al. (2012), and Gul et al. (2011).

Similar to the GDP variable, we also found a negative and strong effect of money supply growth on NIM. In particular, variable M2 has a mean coefficient of $\gamma = -0.0339$, and there is a probability that variable M2 has a negative effect of 87.49% (Table 5). Our result contradicts that of Khan and Jalil (2020).

Table 5: Regression of bank-specific and macroeconomic variables on the NIM

Dependent variable: NIM				
Independent variables	Posterior mean	Posterior probability	Efficiency	Rc
LNSIZE	0.1858	0.9950*	0.9802	1.0000
	[0.0422; 0.3290]			
ROA	1.2326	1.0000*	0.9877	1.0000
	[0.8016; 1.6534]			
BOPO	0.0505	0.9064*	1.0000	1.0000
	[-0.0258; 0.1258]			
GWM	-0.9291	0.8739**	0.9863	1.0000
	[-2.5406; 0.6644]			
LDR	0.0098	0.8958*	1.0000	1.0000
	[-0.0054; 0.0251]			
NPL	0.1482	0.9001*	1.0000	1.0000
	[-0.0772; 0.3733]			
MPR	-0.0078	0.8466**	1.0000	1.0000
	[-0.0228; 0.0071]			
INFL	0.0021	0.5302*	0.9565	1.0000
	[-0.0517; 0.0556]			
GDP	-0.3026	0.9809**	1.0000	1.0002
	[-0.5872; -0.0160]			
M2	-0.0339	0.8749**	1.0000	1.0000
	[-0.0913; 0.0243]			
constant	0.6458	0.7506*	1.0000	1.0001
	[-1.2338; 2.5384]			
var	8.2900	—	0.9163	1.0003
	[7.0689; 9.7420]			

Notes: 95% credible interval in brackets. *Probability of mean > 0. **Probability of mean < 0.

MCMC Diagnostics

As presented in Section 3.3 (Empirical Strategy), the posterior distribution is created based on the MCMC technique. Thus, the quality of the sample generated by the MCMC algorithm must accurately estimate the target distribution (Roy, 2020). Therefore, MCMC diagnostics are necessary to test the convergence of Markov chains and MCMC sampling cessation. In the current article, we utilized the Gelman-Rubin statistic, also known as the Rc coefficient, to test the convergence of the Markov chain and efficiency index to consider MCMC sampling cessation.

Tables 4 and 5 display that the coefficient Rc of all parameters is less than 1.1. According to Roy (2020), the Rc coefficient of less than 1.1 is evidence that the MCMC algorithm has generated representative samples. That is, Markov chains have converged. Meanwhile, the efficiency index of

all Markov chains greater than 0.01 indicates that MCMC-based estimates are more accurate and stable in terms of the characteristics of the posterior distribution. Thus, MCMC diagnostics through the Rc coefficient and the efficiency index demonstrate that the sample quality generated by the MCMC algorithm has provided an accurate estimate of the posterior distribution.

CONCLUSION

The present article analyzes the factors affecting the NIM of 24 joint-stock commercial banks in Vietnam from 2008 to 2020. Although several previous studies examined factors, including bank-specific and macroeconomic factors affecting banks' NIM, these studies were carried out based on the frequentist approach. The current study utilizes the Bayesian approach, specifically Bayesian linear regression, to discover the relationship. Our result indicates that LNSIZE, ROA, BOPO, LDR, and NPL positively affect the NIM of banks while GWM, MPR, GDP, and M2 negatively affect NIM. The effect of the INFL on NIM is ambiguous.

The result of our article has provided important information for bank managers by showing the effect of bank-specific and macroeconomic factors on the NIM so that they give solutions to enhance the operational efficiency of banks. Furthermore, our findings provide investors with investment opportunities based on the factors affecting a bank's NIM. However, the study has limitations as follows. Future research may consider comparing NIMs of domestic and foreign capital banks in Vietnam. Furthermore, our study only examined one country for a limited period, implying that future research needs to investigate this association in other emerging markets with different banking structures. For instance, future studies can be extended by comparing and analyzing the determinants of NIM of banks among other countries in Southeast Asia. The comparison result may provide more insight for governments to plan their monetary policies.

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