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How Does Female Entrepreneurship Affect Happiness?

Abstract

The purpose of this paper is to investigate the correlation between female entrepreneurship and happiness within the Association of Southeast Asian Nations (ASEAN) region. The study uses a panel data model with two independent variables measuring female entrepreneurship and five control variables measuring the determinants of happiness. The method used for analysis is the panel fixed effects of the method of moments quantile regression (MM-QR) to examine data from nine ASEAN countries between 2006 and 2021. MM-QR can capture the location and scale of the conditional distribution of the dependent variable, making it suitable for studying the heterogeneous effects of female entrepreneurship on happiness across happiness quantiles. This approach controls for unobserved time-invariant heterogeneity, reducing omitted variable bias in cross-sectional studies. The MM-QR approach is rigorous and robust for analysing the complex relationship between female entrepreneurship and happiness in ASEAN countries. The main contribution of this study is to shed light on the relationship between female entrepreneurship and happiness, which reinforces and supports comprehensive development in emerging countries. The findings suggest that policymakers and practitioners can benefit from supporting female entrepreneurship by implementing policies and programs that provide access to education, training, mentorship, and financing. Furthermore, the study highlights the importance of the gender development index (GDI) as a determinant of happiness in ASEAN countries.

Keywords

entrepreneurship | female entrepreneurs | happiness | method of moments quantile regression | Southeast Asia countries

JEL Codes

C23, I31, J16, L26

1. Introduction

Entrepreneurship has been recognized as a key driver of economic growth in many countries, including those in Southeast Asia. When it comes to the relationship between female entrepreneurship and happiness, however, there are some complexities to consider. While it is widely accepted that entrepreneurship can create jobs and spur innovation, the specific association with the well-being and happiness of female entrepreneurs in Southeast Asian countries is

not yet fully understood. Previous studies have focused on the economic benefits of entrepreneurship without considering the potential gendered relationships. In this context, it is important to examine the relationship between female entrepreneurship and happiness in Southeast Asia and to identify ways to support women's entrepreneurship in a manner that promotes both economic growth and well-being.

Each country's economic climate, administrative structure, and cultural norms affect men and women's entrepreneurial tendencies, but economics literature

rarely explains these disparities (Weber, Fasse & Haugh, 2022). However, it is well-established that women's equal participation in the workforce is crucial for a country's prosperity, and women entrepreneurs play a vital role in driving economic growth (Waseem, 2018). Encouraging women to work in business boosts economic growth, technology, and consumer goods. Entrepreneurial women can boost emerging economies by creating jobs, income, and social cohesion (Chatterjee, Das & Srivastava, 2019). Kato and Wiklund (2011) emphasise entrepreneurs' emotional control throughout the entrepreneurial process. They emphasise emotions as behaviour triggers and the link between entrepreneurship and pleasure and happiness. Despite their economic contributions, women in Southeast Asia are underrepresented in entrepreneurial opportunities (Roche et al., 2020). Successful female entrepreneurs in Southeast Asia would help women support their families, advance in their careers, improve their happiness, and improve their community's well-being (Sasakawa Peace Foundation, 2022).

Given how important women are to the economic growth of Southeast Asian countries, it is important to find out how female entrepreneurship affects happiness in the area. Specifically, we seek to understand how changes in female entrepreneurship affect not only economic growth but also the overall well-being and happiness of individuals in these countries. In pursuit of this inquiry, we have formulated the following research question:

How does female entrepreneurship contribute to happiness in Southeast Asian countries?

Drawing from the existing body of literature, it is possible to formulate the following hypothesis:

H1: There is a positive correlation between female entrepreneurship and happiness levels in Southeast Asian nations.

- ✓ The correlation between female entrepreneurship and happiness is likely to be more pronounced in nations with elevated levels of gender parity and improved accessibility to resources and funding.
- ✓ The potential association between female entrepreneurship and happiness may exhibit variability across distinct quantiles of the happiness distribution.

The purpose of the research is to investigate the correlation between female entrepreneurship and happiness in countries located in Southeast Asia. The objective of this research is to examine the effects of alterations in female entrepreneurship on happiness, which drives and promotes the economic development and general welfare of the area. The primary inquiry of this investigation is centred on the extent to which female entrepreneurship serves as a contributing factor to the overall level of happiness in the ASEAN region. The research employs panel quantile regression analysis in order to estimate the impacts of data contained in a panel dataset comprising nine Southeast Asian economies spanning the years 2006 to 2021. Two distinct variables that are associated with female entrepreneurship were chosen, in addition to five variables that were used as controls. To examine the correlations between the selected variables, the study will use the MM-QR for panel fixed effects method that Machado and Santos Silva (2019) proposed. The primary aim of this study is to assess the degree to which individual explanatory variables contribute to the role of female entrepreneurship in fostering happiness within Southeast Asian nations. The objective of the research is to offer pragmatic suggestions for enhancing and advancing female entrepreneurship in the area.

The present research offers a noteworthy addition to the existing body of knowledge on the topics of entrepreneurship, gender, and well-being. The study employs a rigorous econometric methodology to establish compelling evidence of the favourable contribution of female entrepreneurship to happiness. This effect can manifest in various forms, including personal and professional advancement, financial security, and a sense of satisfaction. The success of female entrepreneurship can lead to happiness and self-satisfaction while also contributing to the local economy and community, thereby promoting well-being and prosperity.

The MM-QR approach employs the method of moments introduced by Machado and Santos Silva in 2019 to estimate quantile regressions and extends it to encompass multiple fixed effects. This method was made available in the Stata software as of 21 June 2022. In contrast to the standard panel quantile regression, the MM-QR approach incorporates three additional features into the estimation of such models. First, the method enables the computation of location-scale quantile regressions in the absence of fixed effects. Second, the `hdfe` command facilitates the computation

of LS quantile regression while absorbing multiple fixed effects. Moreover, MM-QR presents a joint estimation of diverse quantiles that simplifies the assessment of coefficients across quantiles. This can be achieved through resampling techniques such as Bootstrap or by relying on analytical standard errors. Also, in contrast to the standard panel quantile regression approach, it is possible to estimate standard errors for quantiles, location, and scale effects while adjusting for degrees of freedom. Furthermore, because MM-QR employs a GMM estimator, it also furnishes robust standard errors and clustered standard errors.

The study's emphasis on the ASEAN region is significant, because it acknowledges the increasing importance of the role of female entrepreneurship in propelling economic growth and development in the region (Chikh-Amnache & Mekhzoumi, 2023). The study demonstrates the correlation between female entrepreneurship and happiness, emphasizing the possibility that policies and programs that promote female entrepreneurship can yield favourable outcomes for social development and well-being.

The findings of this study could potentially provide insight into the particular details and contexts surrounding the relationship between female entrepreneurship and happiness. This could be of great value to policymakers and practitioners in Central and Eastern Europe, as it may aid in the development of policies and initiatives aimed at promoting women's entrepreneurship. Such measures may include educational programs, training opportunities, mentorship programs, and financial support, which can facilitate the realisation of the considerable economic and social advantages associated with women's entrepreneurship. Through such actions, individuals have the potential to foster the holistic advancement of their respective nations and establish a more just and enduring prospect for the entire society.

The importance of happiness and self-satisfaction for women cannot be overstated, particularly in emerging countries. Women who are happy and satisfied with their lives are more likely to be motivated and inspired to contribute to their families and communities. This can be achieved through engaging in entrepreneurial activities and emerging institutions, which can provide them with the financial resources and support needed to succeed in these endeavours. By promoting and supporting female entrepreneurship in emerging countries,

women can not only achieve personal and professional growth but also contribute to the comprehensive development of their families and communities. This study's findings on the relationship between female entrepreneurship and happiness can provide valuable insights and recommendations for policymakers and stakeholders in emerging countries, particularly in Central and Eastern Europe, to promote and support female entrepreneurship as a means of achieving comprehensive development and empowering women.

This paper is organised as follows: section two presents a literature review; section three mentions the methodology and research methods; section four includes the statistical and econometric results; section five discusses the panel quantile regression results; and section six concludes the paper.

2. Literature Review

It is clear that many nations have recognised the need to encourage and reward entrepreneurs in order to boost their economies (Mustapha & Subramaniam, 2016). It is generally agreed that encouraging and supporting entrepreneurial endeavours is crucial for fostering economic growth. Entrepreneurship improves society in numerous ways, not only by creating new jobs and improving existing ones. Entrepreneurs are the engine that powers the world's economies, technical progress, and social evolution (Schumpeter, 1931). According to neoclassical theory, entrepreneurship is 'the process by which the forces of production (capital and labour) are integrated, including risk, to generate products and services that correspond to customer expectations', regardless of the entrepreneur's gender (Lowrey, 2003).

Behavioural economists have observed that the decision-making process regarding economic outcomes is frequently influenced by the interplay between rationality and human psychology. Given that perceptions, emotions, feelings, and motivations often come into play during the process of making rational decisions, it is imperative that psychological factors are not overlooked but rather subjected to more extensive investigation (Batrancea L., 2021a). Happiness is something that most people aim for, yet its definition can be quite broad. Happiness is not necessarily correlated with financial success in today's society. It's vital that we evaluate how much our worldly possessions contribute to our happiness,

as well as the sources of satisfaction and well-being that lie outside of such goods (Frey, 2018). Although traditionally studied in philosophy, ethics, healthcare, and psychology, 21st-century developments such as neuroscience are putting pressure on business, management, economics, education, and, more recently, entrepreneurship to advance research and assume responsibility for wellbeing imperatives. Despite women's rising influence on advancement, the study of their well-being in the realm of entrepreneurship remains relatively uncharted territory (Lepeley et al., 2020). Women entrepreneurs worldwide are responsible for family care and comfort, childcare, children's education, elder parent care, and many other production duties in addition to operating a company. So, women entrepreneurs have a multiplier effect that benefits their families, the economy, and society. The multiplier effect is linked to women entrepreneurs' happiness and life-work balance, which benefits not just them but also their families and children. In particular, the well-being of 'mumpreneurs' is strongly linked to their children's success and their capacity to handle life's problems and contribute to society (Lepeley, 2020).

Theoretical and empirical studies that look at the link between women's entrepreneurship and happiness give us important information about how entrepreneurship might affect the happiness of women. From a theoretical point of view, the idea of women's entrepreneurship as a way to improve the economy and give women more power has been talked about extensively. Scholars have talked about how entrepreneurship gives women access to economic resources, gives them more freedom and power to make decisions, and improves their overall health and well-being. In several countries and regions, empirical studies have also looked at the link between female entrepreneurship and happiness. To figure out how entrepreneurship affects the well-being of women, these studies have used different ways to measure happiness, such as self-reported life satisfaction, happiness, and positive emotions.

Using 1107 Dutch entrepreneurs, Carree and Verheul (2012) examined the well-being of new business creators. This study shows that entrepreneurship satisfaction, income, psychological constraints, and time management affect business performance. The study found that entrepreneurs with intrinsic, nonmonetary motivations are less stressed because they enjoy their leisure time. According to the authors, women entrepreneurs can be happy with

lower incomes than men. Female entrepreneurs are also less tolerant of stress and enjoy their free time less than male entrepreneurs. The authors also note that risk-averse entrepreneurs enjoy their income more and handle stress better. They also find that start-up capital reduces income satisfaction by raising return on investment expectations. According to the same study, start-up capital is proportional to company performance, which drives entrepreneur satisfaction. The entrepreneur's satisfaction would also be limited in a complex investment environment with fierce competition, hazards, and market share challenges.

Daping, Jialing, and Zhichao (2019) focus on the impact of entrepreneurial activity on the happiness of the entrepreneurs in general. Through their research, the authors have shown that the main reason for this effect is that household incomes and purchasing power have gone up. Also, the study of the relationship between entrepreneurship and household happiness, analysing the essential factors justifying this influence, namely, entrepreneurship, decision-making, and experience in the field of entrepreneurship in general.

The study by Chakraborty, Ganguly, and Natarjan (2019) was based on a sample of 120 women digital entrepreneurs. The authors conclude that despite certain difficulties faced by women entrepreneurs, facing a multitude of obstacles in managing their businesses does not deter them. The study highlights that beyond the objective of financial profitability, women entrepreneurs are looking for nonmaterial goals, such as self-esteem, as an element of satisfaction, commitment, and perseverance. More generally, the authors point out that non-monetary determinants have a significant positive impact on the well-being of women entrepreneurs in the digital field. This article also notes that the levels of well-being of women entrepreneurs depend on the income they make, the material comfort obtained, the levels of sales and innovation, and employee confidence.

Lepeley et al. (2020) emphasise the weight of gender inequalities in terms of opportunities for the creation and development of entrepreneurial activity. As they point out, the stereotypes promoted by the media in this area negatively affect the well-being of women entrepreneurs, while perpetuating the gender gap.

The study by Prasetyani, Tia, and Indah (2020) set out to establish a precise definition of the phenomenon of happiness among women entrepreneurs in their professional environment. The study was conducted in the city of Surakarta, mainly using the qualitative

method. The study highlights that the happiness of women entrepreneurs depends on both material and intangible aspects. They show that there is a positive correlation between business success and happiness. Indeed, beyond the material benefits of the success of the female element, women in Surakarta believe that success in business would be a source of peace of mind, reducing the pejorative feelings of worry and fear. For these women, happiness is synonymous with self-realisation and achieving business, family, and life goals. For her, it is this balance and reconciliation between the duties to be fulfilled that would be at the origin of happiness: balance between the roles of mother, wife, entrepreneur, etc.

Sweida and Sherman (2020) polled 849 residents of the western, midwestern, and northern United States through an internet survey. The results of the study demonstrated that both men and women can benefit from simply harbouring an entrepreneurial mindset. This article argues that women's entrepreneurial motivation is less substantial than men's, but that its benefits are more pronounced in women. Women are disproportionately responsible for childcare, academics, and housework, as shown by the study. This causes them a lot of anxiety and discourages them from taking any risks in the household. Women who engage in entrepreneurial pursuits tend to develop greater resilience in the face of adversity and a more robust tolerance for stress.

Stephan, Rauch, and Hatak (2022) believe that entrepreneurship can be a source of fulfilment and well-being, but it can also be a source of stress, anxiety, and burnout, and therefore negatively affect well-being. The authors analyse 94 studies from 82 countries that seek to show whether self-employment provides a higher level of well-being than working for another person. Overall, the response is positive and in favour of entrepreneurship, but the authors point out that other factors may interact with this effect, including institutional quality and the nature of the state.

3. Methodology

Nine countries from ASEAN (Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam) are represented in this research, with yearly data from 2006 to 2021. Unfortunately, we were unable to include Brunei and

Table 1. Variables and their descriptions

Variable	Simply means	Source
Response variable		
GHI	Global Happiness Index	World Happiness Report
Independent variables		
FEPI	Female Entrepreneurship Indicator Score	Gender Data Portal
GDI	Gender Development Index	UN Development Programme
LGDPpc	Log GDP per capita	World Happiness Report
HLEB	Healthy life expectancy at birth	
FMLC	Freedom to make life choices	
GNST	Generosity	
POC	Perceptions of corruption	
HDI	Human Development Index	UN Development Programme

Source: Compiled and systematised by the authors

Timor-Leste in our analysis due to a lack of data for most variables during the study period. The study's dependent and independent variables, together with their definitions and sources of data, are all listed in Table 1.

Assessing the female entrepreneurs' effects on happiness in ASEAN nations is a complex issue because of the varying socioeconomic factors that affect women's lives. A valid framework must consider all relevant factors and account for any biases that may arise from overlooking significant variables. Ignoring variable biases when testing hypotheses or estimating parameters can lead to incorrect conclusions. While some studies have explored the relationship between female entrepreneurship and economic growth, there has been limited research using a macro-econometric panel data approach to examine the association with happiness. Drawing on results from other studies, such as Carree and Verheul (2012); Daping et al. (2019); Lepeley et al. (2020); Prasetyani et al. (2020); Sweida and Sherman (2020); Stephan et al. (2022); and Chikh-Amnache and Mekhzoumi (2023), the following model is used in our empirical investigation:

$$GHI_{it} = \beta_0 + \beta_1 FEPI_{it} + \beta_2 GDI_{it} + \beta_3 LGDPpc_{it} + \beta_4 HLEB_{it} + \beta_5 FMLC_{it} + \beta_6 GNST_{it} + \beta_7 POC_{it} + \beta_8 HDI_{it} + \varepsilon_{it} \quad (01)$$

Because ordinary least squares (OLS) regression has the potential to exaggerate the significance of the variables influencing happiness, the panel quantile method is favoured. Furthermore, OLS potentially might fail to take into consideration the heterogeneous distribution. Also, the panel quantile gives more accurate estimates than the OLS if the errors do not follow a normal distribution (Baltagi, 2013). Nevertheless, OLS-based approaches cannot estimate the effect of female entrepreneurship on happiness in a manner that takes into account the varying levels of happiness among countries. Quantile regression gives a thorough description of a conditional distribution and represents a leap in regression approaches (Agung, 2021). When the interactions between x and y change at low and high levels of y , researchers may be more interested in examining the heterogeneity of these linkages than in focusing just on the mean and median. In this case, a quantile regression (QR) approach would be appropriate. Each of these methods examines the conditional and unconditional distribution of the response variable with regards to the relationships between the response and explanatory variables (Rios-Avila & Maroto, 2022).

Koenker and Bassett (1978) introduced the concept of quantile regression, which uses standard mean regression analysis to examine data at a wider range of quantiles. The requirements for using quantile regression are less stringent than those for using conventional least-squares regression. This method of explaining the regression coefficient more fully involves regressing the independent variables according to the conditional quantile of the dependent variable (Davino, Furno & Vistocco, 2014). In contrast to traditional least-squares regressions, which produce estimates of the conditional mean of the dependent variable given a set of exogenous variables, quantile regressions are typically used to estimate the conditional median, or a number of different quantiles of the response variable given a set of explanatory variables. Outliers have less of an effect on quantile regressions. This method shines in cases when the conditional means of two variables are either absent or minimal (Ike, Usman & Asumadu-Sarkodie, 2020). Furthermore, since estimators are computed for multiple quantiles, the basic quantile regression does not have the property of noncrossing estimates, which

might lead to an incorrect distribution of the response (An et al., 2021).

The use of panel data has increased in recent years, making cross-sectional and time-series data less common. Quantile estimation from longitudinal data through linear regression is much advanced by the work of Koenker (2004). He explores a model in which simultaneous (location) changes to the distribution of the response variable are generated only by the impacts of the individuals comprising the model, with the goal of reducing the impact of the incidental parameter issue.

Using the cutting-edge MM-QR technique for panels with fixed effects, this study examines the influence of two explanatory variables representing female entrepreneurship's effect on happiness across nine ASEAN nations. We used the MM-QR technique, which takes heterogeneity into account, to estimate the distribution of conditional happiness. Using data from a sample of n nations ($i = 1, 2, \dots, n$) over T time periods ($t = 1, 2, \dots, T$), we developed a location-scale model of the conditional quantiles.

$$GHI_{it} = \alpha_i + X'_{it}\beta + (\delta_i + Z'_{it}\gamma)U_{it} \quad (02)$$

Where $P\{\delta_i + Z'_{it}\gamma > 0\} = 1$. Individual i fixed effects are denoted by (α_i, δ_i) , $i = 1, 2, \dots, n$, and Z is a k -vector of transformations of the elements of X with probability 1 that are known to be differentiable. The expanded form of model (02) is as follows:

$$Q_{GHI}(\tau|X_{it}) = (\alpha_i + \delta_i q(\tau)) + Z'_{it}\gamma q(\tau) \quad (03)$$

The independent variables, represented by X_{it} , include FEPI, GDI, LGDPpc, HLEB, FMLC, GNST, POC, and HDI. The conditional quantile distribution of the response variable GHI, denoted by $Q_{GHI}(\tau|X_{it})$, is based on the values of the explanatory variables. We define the τ -th quantile (where $0 < \tau < 1$) of the conditional distribution of the dependent variable given a set of independent variables X_{it} . The quantile- τ fixed effect for individual i , or distributional effect at τ , is denoted by the scalar coefficient i . Unlike the usual fixed effect, the distributional effect does not involve a change in location, but instead accounts for the influence of time-invariant individual qualities that may have different effects on different parts of the conditional distribution of GHI. The estimate of the

τ -th sample quantile, represented by $q(\tau)$, is obtained by minimising the following optimisation equation:

$$\min_q \sum_i \sum_t \rho_\tau(\hat{R}_{it} - (\hat{\delta}_i + Z'_{it}\hat{\gamma})q) \quad (04)$$

Where $\rho_\tau(A) = (\tau-1)A I\{A \leq 0\} + \tau A I\{A > 0\}$ indicates the check-function.

The regression analysis in the study employed five quantiles with the values of 0.1, 0.3, 0.5, 0.7, and 0.9.

After the model has been estimated, robustness testing must be performed. For a parameter heterogeneity test, inter-quantile tests can be used to determine whether the differences along the coefficients obtained across quantiles are statistically significant. As a result, it was recommended that the Wald robustness test be conducted as proposed by Koenker and Bassett (1982). The null hypothesis of slope equality across quantiles is compared to the alternative hypothesis of slopes that differ significantly across quantiles. The bootstrapping process yields

the variance-covariance matrices of the respective coefficients. We report whether the model at the lower quantile, represented here by the 0.1 quantile, is identical to the median quantile (0.5) and the other quantiles (0.3, 0.7, and 0.9).

4. Results

As a preliminary step in the analytical approach, it is necessary to calculate measures of central tendency and variability, including mean, median, standard deviation, minimum, and maximum values. Additionally, it is important to utilise metrics commonly used to describe distributions, such as skewness and kurtosis (Batrancea, 2022). Table 2 presents the descriptive statistics pertaining to the dependent variable, namely the Global Happiness Index (GHI), as well as the independent variables.

Table 2 presents comprehensive information regarding the mean values of individual countries as

Table 2. Descriptive statistics

	GHI	FEPI	GDI	LGDPpc	FMLC	GNST	HLEB	POC	HDI
Indonesia	5.215	75	0.924	9.152	0.781	0.414	61.845	0.924	0.681
Cambodia	4.269	93.75	0.904	8.091	0.925	0.155	60.006	0.851	0.561
Laos	4.918	100	0.923	8.67	0.894	0.247	58.61	0.62	0.575
Myanmar	4.759	75	0.948	8.104	0.659	0.571	58.676	0.737	0.541
Malaysia	5.863	75	0.966	10.047	0.82	0.114	65.542	0.819	0.783
Philippines	5.262	100	0.968	8.827	0.895	-0.018	61.764	0.778	0.688
Singapore	6.51	75	0.978	11.353	0.848	0.072	72.825	0.103	0.919
Thailand	6.059	75	1.001	9.654	0.874	0.374	67.592	0.911	0.762
Vietnam	5.33	98.437	0.995	8.7	0.891	0.01	64.806	0.783	0.677
Total									
Mean	5.354	85.24	0.956	9.177	0.843	0.215	63.518	0.725	0.687
Std. dev.	0.746	12.33	0.035	1.002	0.121	0.219	4.548	0.245	0.118
Min	3.568	75	0.873	7.638	0.184	-0.151	55.28	0.035	0.465
Max	7.062	100	1.013	11.5	0.965	0.706	73.8	1.036	0.943
Skewness	0.043	0.371	-0.372	0.884	-2.902	0.423	0.600	-1.724	0.415
Kurtosis	2.464	1.134	2.253	3.057	13.204	2.137	2.778	5.035	2.569
Jarque-Bera test	1.76 (0.413)	24.10 (0.000)	6.60 (0.036)	18.39 (0.000)	822.68 (0.000)	8.67 (0.013)	8.77 (0.012)	94.72 (0.000)	5.17 (0.075)
Observations	N = 144, n = 9, T = 16								

Note: The values in parenthesis represent the probability value of the Jarque-Bera test

Source: Calculated by the authors

Table 3. Correlation coefficient matrix

	GHI	FEPI	GDI	LGDPpc	FMLC	GNST	HLEB	POC	HDI
GHI	1.000								
FEPI	0.398	1.0000							
GDI	0.621	-0.105	1.000						
LGDPpc	0.803	-0.459	0.499	1.000					
FMLC	-0.103	0.427	0.157	0.133	1.000				
GNST	-0.214	-0.451	-0.266	-0.264	-0.328	1.000			
HLEB	-0.767	-0.378	0.679	0.810	0.230	-0.329	1.000		
POC	0.377	0.083	-0.163	-0.623	-0.141	0.217	-0.544	1.000	
HDI	0.802	-0.390	0.632	0.964	0.209	-0.358	0.954	-0.520	1.000

Source: Calculated by the authors

well as the mean, standard deviation, minimum, and maximum values of both dependent and independent variables across all ASEAN countries. FEPI exhibited the highest volatility values as per the standard deviation metrics, whereas GDI demonstrated the lowest values, followed by FMLC. The analysis of skewness revealed that six variables exhibited positive skewness, indicating a right-skewed distribution, while the remaining three variables displayed negative skewness, indicating a left-skewed distribution. It was concluded that the distributions of LGDPpc, FMLC, and POC data were leptokurtic, as their kurtosis values exceeded the threshold of 3. The kurtosis values of the remaining variables were observed to exhibit platykurtic distributions, as their values were found to be less than 3. Furthermore, based on the results of the Jarque-Bera test, it was determined that seven of the variables exhibited a non-normal distribution at a significance level of 5%, whereas two variables demonstrated a normal distribution.

Correlation analysis is commonly used to address multicollinearity issues in econometric estimations, as it helps to examine the relationships between predictors that could potentially introduce bias (Batrancea, 2021b). Table 3 presents the correlation coefficients pertaining to the variables under consideration.

Table 3 displays the outcomes, indicating that the highest correlation was identified between LGDPpc and HDI, exhibiting a correlation coefficient of 0.96. A correlation coefficient of 0.95 was detected between HLEB and HDI, indicating the second-highest correlation between the two variables. The

correlation coefficient of 0.08 indicates the lowest correlation between POC and FEPI. When two correlation coefficients exceed the threshold of 0.9, it suggests a strong possibility of multicollinearity. This can result in biased outcome estimates. In order to confirm the aforementioned, it is necessary to evaluate the existence of multicollinearity by employing the variance inflation factor (VIF).

On account of multicollinearity, the variance inflation factor (VIF) assesses the extent to which the variance of a regression coefficient is magnified. On average, VIF values ranging from 5 to 10 indicate a potentially high correlation. In cases where the VIF surpasses the threshold of 10, the presence of multicollinearity becomes a significant concern (Batrancea, Rathnaswamy & Batrancea, 2021). Table 4 displays the VIFs pertaining to the independent variables.

The variables LGDPpc, HLEB, and HDI exhibit VIF values that surpass 10, which suggests a significant problem of multicollinearity. In order to tackle this issue, it is imperative to omit the variable that exhibits the greatest level of collinearity, namely HDI, and subsequently carry out a retest to procure the ensuing outcomes:

All variables in the model have a VIF of less than 10, indicating the absence of multicollinearity.

In formula-based quantile regression (3), estimating coefficients for female entrepreneurship indicator (FEPI), gender development index (GDI), Log GDP per capita, freedom to make life choices, healthy life expectancy at birth, generosity, and perceptions of

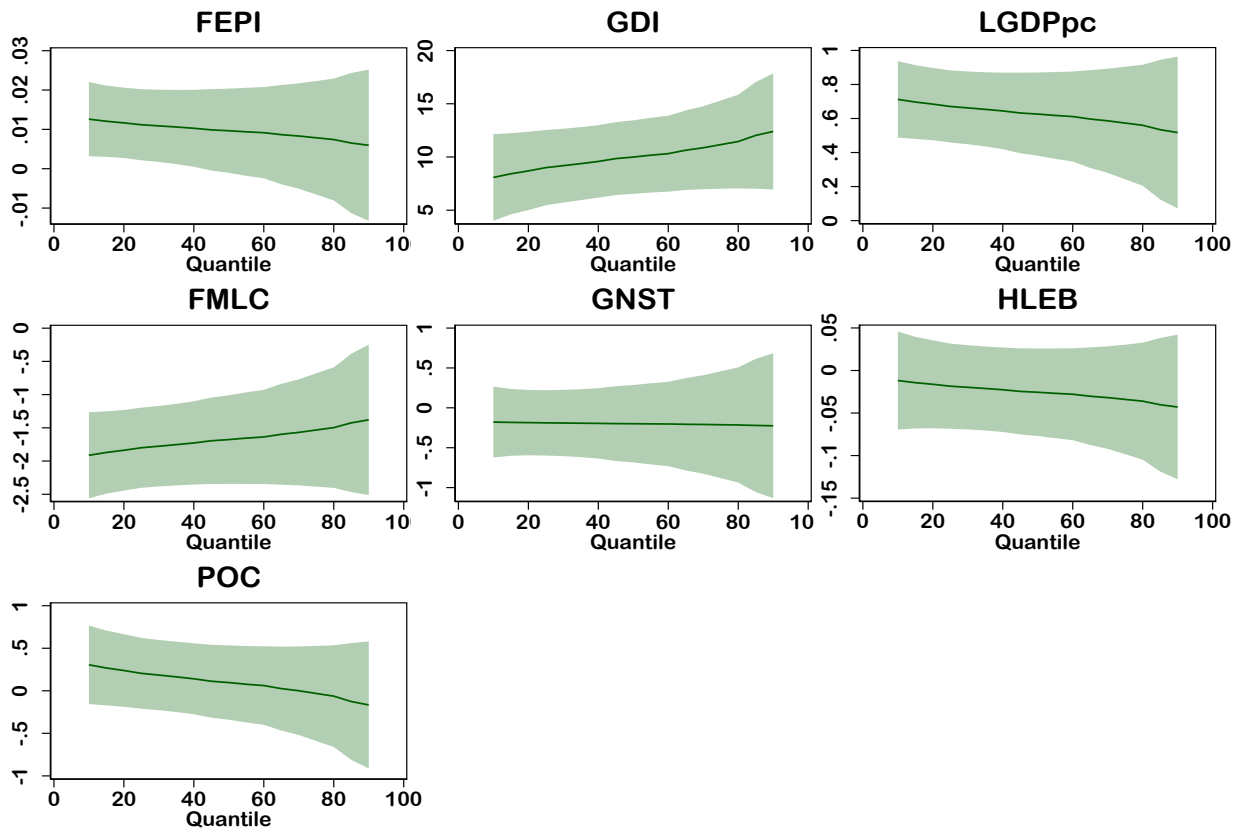


Figure 1. Quantile estimation: The grey areas represent 95% confidence intervals. (QR coefficients and confidence intervals as the quantile varies from 0 to 1)

Table 4. Variation inflation factors (VIF) for independent variables

	VIF	Tolerance
FEPI	3.96	0.252643
GDI	2.98	0.335791
LGDPpc	36.96	0.027053
FMLC	1.79	0.557311
GNST	2.50	0.399739
HLEB	15.36	0.065123
POC	2.73	0.365992
HDI	53.45	0.018708

Source: Calculated by the authors

corruption were conducted using quantiles of 0.1, 0.3, 0.5, 0.7, and 0.9.

The panel quantile regression estimates in Table 6 reveal the following results: For all quantiles except the two highest, the FEPI has a positive and statistically significant effect on the dependent variable. LGDPpc

Table 5. Variation inflation factors after omitting HDI

	VIF	Tolerance
FEPI	3.96	0.252770
GDI	2.60	0.384915
LGDPpc	8.69	0.115036
FMLC	1.73	0.576983
GNST	2.21	0.451929
HLEB	8.76	0.114155
POC	2.10	0.476867

Source: Calculated by the authors

and GDI have positive and significant effects on happiness across all quantiles. FMLC significantly and negatively affects happiness across all quantiles. Yet, the GNST, HLEB, and POC variables have a statistically insignificant effect across all quantiles.

Figure 1 displays graphically the findings of the MM-QR regression. Confidence intervals, shown by the shading, accompany every quantile regression

Table 6. MM-QR regression results

	OLS		Quantile of GHI				
	Location	Scale	1 st quantile	2 nd quantile	3 rd quantile	4 th quantile	5 th quantile
FEPI	0.0094* (0.0056)	-0.002 (0.003)	0.012*** (0.004)	0.010** (0.004)	0.009* (0.005)	0.008 (0.006)	0.0059 (0.009)
GDI	10.127*** (1.772)	1.361 (1.042)	8.081*** (2.077)	9.188*** (1.769)	9.995*** (1.762)	10.871*** (1.991)	12.40*** (2.784)
LGDPpc	0.62*** (0.128)	-0.061 (0.076)	0.712*** (0.114)	0.662*** (0.109)	0.626*** (0.124)	0.586*** (0.156)	0.517** (0.351)
FMLC	-1.66*** (0.348)	0.168 (0.189)	-1.913*** (0.330)	-1.776*** (0.309)	-1.676** (0.340)	-1.371*** (0.376)	-1.379** (0.577)
GNST	-0.20 (0.256)	-0.014 (0.158)	-0.178 (0.226)	-0.190 (0.211)	-0.198 (0.247)	-0.208 (0.315)	-0.224 (0.463)
HLEB	-0.026 (0.026)	-0.009 (0.015)	-0.011 (0.029)	-0.019 (0.025)	-0.025 (0.026)	-0.031 (0.030)	-0.042 (0.043)
POC	0.082 (0.225)	-0.148 (0.135)	0.305 (0.235)	0.185 (0.210)	0.096 (0.222)	0.001 (0.265)	-0.165 (0.381)
cons	-7.767*** (1.303)	0.284 (0.73)	-8.195*** (1.188)	-7.964*** (1.125)	-7.795*** (1.269)	-7.612*** (1.554)	-7.292*** (2.193)

Notes: Coefficient robust standard errors are shown in parenthesis, ***significant at 1%, **significant at 5%, *significant at 10%

Source: Calculated by the authors

Table 7. Homogeneity Wald tests

	0.10		0.30			0.50		0.70		All Quantiles	
	0.30	0.50	0.70	0.90	0.50	0.70	0.90	0.70	0.90		
FEPI	0.41 (0.52)	0.41 (0.52)	0.42 (0.51)	0.42 (0.51)	0.40 (0.52)	0.41 (0.51)	0.42 (0.51)	0.42 (0.51)	0.42 (0.51)	0.41 (0.52)	0.43 (0.98)
GDI	1.61 (0.20)	1.65 (0.19)	1.68 (0.19)	1.67 (0.19)	1.56 (0.21)	1.64 (0.20)	1.65 (0.19)	1.60 (0.20)	1.64 (0.20)	1.57 (0.21)	1.68 (0.79)
LGDPpc	0.63 (0.42)	0.63 (0.42)	0.63 (0.42)	0.63 (0.42)	0.62 (0.43)	0.62 (0.43)	0.62 (0.42)	0.61 (0.43)	0.62 (0.43)	0.61 (0.43)	0.63 (0.95)
FMLC	0.76 (0.38)	0.77 (0.37)	0.78 (0.37)	0.77 (0.38)	0.75 (0.38)	0.78 (0.37)	0.76 (0.38)	0.78 (0.37)	0.76 (0.38)	0.73 (0.39)	0.79 (0.93)
GNST	0.01 (0.92)	0.01 (0.92)	0.01 (0.92)	0.01 (0.92)	0.01 (0.92)	0.01 (0.92)	0.01 (0.92)	0.01 (0.92)	0.01 (0.92)	0.01 (0.92)	0.01 (0.99)
HLEB	0.37 (0.54)	0.37 (0.54)	0.38 (0.53)	0.38 (0.53)	0.37 (0.54)	0.38 (0.53)	0.38 (0.53)	0.38 (0.53)	0.38 (0.53)	0.38 (0.53)	0.38 (0.98)
POC	1.17 (0.27)	1.19 (0.27)	1.19 (0.27)	1.18 (0.27)	1.15 (0.28)	1.16 (0.28)	1.16 (0.28)	1.11 (0.29)	1.15 (0.28)	1.13 (0.28)	1.19 (0.87)

Notes: The numbers in parentheses are p -values.

Source: Calculated by the authors.

result at the 95% level of significance. Along the vertical axis, the elasticities of the independent variables are shown. The OLS coefficients are shown together with their normal (95%) confidence intervals, which are depicted as horizontal lines.

A robustness test of the model occurs after the estimation process. For the purpose of ensuring the accuracy of its findings, this research employs robustness testing, such as tests for various effects. Our estimates of the relationship between female entrepreneurship and happiness, as well as other economic explanatory variables, suggest quantile-specific effects. Strictly, we check whether the parameters predicted for the different quantiles vary statistically. The outputs are summarised in the table below:

We plan to use Wald tests to compare the estimated coefficients of the quantiles (0.10, 0.30, 0.50, 0.70, and 0.90) and determine if they are significantly different from each other, as required by the assumption of heterogeneity among the coefficients. The Wald test results are shown in Table 7, which demonstrates that the null hypothesis of equality cannot be rejected at the 5% level for all independent variables, meaning that there is no variation in dependency structures across quantiles.

5. Discussion

Starting a business can provide women with a sense of purpose, autonomy, and control over their lives. Entrepreneurship also allows women to use their skills and knowledge to create something of value, which can be personally fulfilling. Additionally, running a successful business can provide financial stability, which can contribute to overall life satisfaction. Entrepreneurship can also be challenging and stressful, however, particularly in the early stages of starting a business. Women entrepreneurs may face unique barriers, such as gender bias and limited access to funding, which can make starting and growing a business more difficult. Therefore, while entrepreneurship can provide women with many benefits, it is not a guaranteed path to happiness. Based on the aforementioned empirical results, we will provide some discussions and judgments about how entrepreneurship can contribute to women's happiness in ASEAN countries using the results of panel quantile regression with fixed effects.

According to the results of the above estimates, FEPI has a positive but weak effect on happiness in Southeast Asian countries. Entrepreneurial inclination correlates positively with life satisfaction; that is, those who are more likely to participate in entrepreneurial activities are happier (Kılıç, 2022). Entrepreneurship and innovation have boosted Singapore's economy and development. Entrepreneurial opportunities have arisen from the government's policies and programs. This supportive environment gives aspiring entrepreneurs purpose and autonomy, which can improve their happiness and life satisfaction. Entrepreneurship and startup cultures have grown in Thailand and Indonesia. Startups and entrepreneurial ventures have spurred economic growth and allowed people to pursue their passions and create value. Entrepreneurs in these countries may be happier if they have meaningful work and control over their lives. Entrepreneurship is not easy. Gender bias and limited funding may hinder female entrepreneurs. These obstacles may affect their entrepreneurial journey and life satisfaction. Addressing these barriers and promoting gender equality in entrepreneurship are essential to giving women equal opportunities and the health benefits of entrepreneurship (Chikh-Amnache & Mekhzoumi, 2023).

A variety of factors may have an impact on a person's level of life satisfaction. Happiness in life, a feeling of purpose, collaboration in the pursuit of one's goals, a strong sense of self, a healthy physique, financial security, and a helpful social network are some of them (Myers & Diener, 1995). Engaging in entrepreneurial activities in ASEAN countries not only provides individuals with a sense of meaning and direction but also allows them to contribute to society. Entrepreneurs who establish businesses to address social or environmental challenges often experience a deeper sense of purpose, which positively impacts their overall life satisfaction. The entrepreneurial ecosystems in ASEAN countries foster collaboration, networking, and support among entrepreneurs, mentors, investors, and organisations, enhancing well-being by promoting connections, guidance, and a sense of belonging. Entrepreneurship offers individuals the opportunity to explore their strengths, passions, and values, leading to self-discovery and personal growth, which contribute to overall life satisfaction. The impact on health varies, however, as entrepreneurship can either positively or negatively affect well-being through factors such as work-life balance, stress management, and lifestyle choices. Maintaining physical health, work-life harmony, and

effective stress management are crucial for sustaining well-being and experiencing greater life satisfaction as an entrepreneur. Additionally, successful entrepreneurial endeavours can provide financial stability and independence, positively impacting individuals' overall life satisfaction by meeting their financial needs and aspirations (Chikh-Amnache & Mekhzoumi, 2023).

The research by Eleren and Sadykova (2016) discovered that although happiness is positively correlated with innovation and independence, it is inversely correlated with risk-taking. Entrepreneurs who launch innovative products and services can feel fulfilled and successful, which boosts their happiness. Independence and autonomy in decision-making and goal-setting can also improve well-being. Nevertheless, starting and running a business requires them to feel fulfilled and successful, which boosts their happiness. Independence and autonomy in decision-making and goal-setting can also improve well-being. Nevertheless, starting and running a business requires taking risks. Excessive risk-taking or constant uncertainty can cause stress, anxiety, and decreased happiness. For entrepreneurial well-being, innovation and independence must be balanced with calculated risk management. Many innovative, independent entrepreneurs in the ASEAN region have succeeded while managing risk. Grab, a Singaporean ride-hailing and food delivery platform, started as a small startup and now dominates the Southeast Asian market. Grab's founders risked entering a competitive industry but innovated and provided valuable services, helping the company succeed and possibly improving their own happiness and life satisfaction.

According to the findings of Crum and Chen (2015), self-employment is associated with greater levels of happiness and life satisfaction among women in high-income nations. In ASEAN countries, women entrepreneurs have found happiness and fulfilment through self-employment. In Malaysia, successful women entrepreneurs have founded businesses and found personal and professional fulfilment. Fashion Valet co-founder Vivy Yusof is an example. Vivy Yusof's entrepreneurial success has inspired many female entrepreneurs in the region. Self-employment makes high-income women happier and more fulfilled for several reasons. First, self-employment allows women to balance their personal and professional goals. Controlling their workplace and decisions can empower and satisfy them. Second, self-employment often allows for work-life balance. Self-employed

women can adjust their schedules to fit family and personal obligations. Third, self-employment can help women grow, learn, and follow their passions. Women can use their talents, creativity, and interests to start their own businesses and find job satisfaction. Self-employment, happiness, and life satisfaction vary person-to-person and are influenced by personal circumstances, entrepreneurial challenges, and cultural contexts. The research suggests, however, that self-employment can help ASEAN women find professional happiness and life satisfaction.

According to Amorós and Bosma (2013), younger entrepreneurs were less satisfied than older ones and less happy than people with ordinary occupations, regardless of gender. Starting a company is difficult and rarely happiness-inducing initially. As their enterprises grow, women entrepreneurs' well-being improved, proving that entrepreneurship may generate life satisfaction and happiness. This finding indicates that starting a company can be challenging and may not necessarily lead to immediate happiness. As women entrepreneurs' businesses grow and develop, however, their well-being tends to improve, highlighting the potential of entrepreneurship to generate life satisfaction and happiness. Examples from ASEAN countries support the notion that women entrepreneurs find fulfilment and happiness as their businesses thrive. For instance, in the Philippines, there are successful women entrepreneurs who have built enterprises that not only generate financial success but also contribute to societal well-being. One example is Adelaida Lim, the founder of HABI, the Philippine Textile Council. Through her venture, she promotes traditional Filipino textiles and provides livelihood opportunities to local weavers, bringing her both personal satisfaction and a sense of contributing to society.

Women entrepreneurs often view success not solely from a monetary perspective but also in terms of mental well-being and peace of mind. Research by Prasetyani et al. (2020) suggests that women business owners derive happiness and satisfaction from factors such as self-satisfaction, pleasure, and the sense of making a positive impact on society. This perspective aligns with the idea that happiness and success are intertwined for female entrepreneurs. Solanki (2019) emphasises that women entrepreneurs in ASEAN countries perceive their achievements as multifaceted, encompassing not only financial success but also personal fulfilment and the ability to create jobs and value within their communities. This broader

definition of success reflects the holistic nature of happiness and the significance of entrepreneurship in generating a sense of purpose and accomplishment for women in the region. Although the process of embarking on a business venture may not always be accompanied by immediate happiness, the advancement and prosperity of female entrepreneurs in ASEAN nations have the potential to enhance overall welfare and contentment. The capacity of women to attain contentment, mental tranquillity, and make valuable contributions to society via their entrepreneurial pursuits highlights the favourable influence that entrepreneurship can exert on the lives of women in the area.

The gender development index (GDI) measures gender-based disparities in education, health, and income. GDI positively correlates with happiness in Southeast Asian countries. Compared to the findings of Chikh-Amnache and Mekhzoumi (2023), this result suggests that the positive effect of the gender indicator on happiness is still less than it should be in terms of helping Southeast Asian countries' economies grow.

Education, especially for women, increases happiness. Education gives people knowledge, skills, and purpose. Education improves critical thinking, which helps women handle personal and professional issues. Education can also increase employment opportunities and pay, which can boost income and well-being. Despite the fact that factors like education, work, and marital status have significant effects on people's happiness, these factors have different impacts on men and women. Employment seems to have a greater impact on men's results, while education and marital status appear to have a greater impact on women's outcomes (Maharlouei et al., 2020). Due to strong prejudices and environments' perception of women's skills, women can find it hard to get their professional skills recognized. Women tend to choose traditional careers or self-employment rather than starting a business as they get more education (Lindgren & Packendorffz, 2010). Apprenticeships and training are essential to entrepreneurial decisions, as Field et al. (2016) demonstrate. According to the Sasakawa Peace Foundation (2019), Southeast Asian women's low enrolment in higher education is due to a lack of accessible programs and a preference for traditionally 'feminine' fields of study. Eighty per cent of women in OECD (Organization of Economic Cooperation and Development) member countries graduate from secondary school, but only 38% of Southeast Asian women do. The apparel, food and beverage, healthcare,

and service industries are often featured in 'feminine' graduate and vocational programs for women.

Access to healthcare, especially for women, also boosts GDI and happiness. Women who have access to mental health treatment and support can improve their mental health outcomes. Health improvements can boost social participation, productivity, and well-being. The findings corroborate the claims that health status is a major determinant of satisfaction with life, that the strength of the correlation between health and happiness varies greatly depending on the method used to assess health, and that the presence of disease is inversely related to happiness (Angner et al., 2013). There were important findings in the study by Angner et al. (2009). Firstly, it was observed that median happiness increases at a decreasing rate in relation to self-rated health, while happiness variability decreases at a decreasing rate. Secondly, subjective health measures were found to be a more reliable predictor of happiness compared to objective measures, which were largely uncorrelated with happiness. Studies conducted in non-Western countries have shown that demographic factors such as age, education, family size, health, and income may have an impact on subjective measures of well-being. Better health brings Malaysians happiness, and a comfortable financial situation brings them contentment with their lives (Howell et al., 2012). Poverty and wealth disparity have significant negative effects on public health in South Asian nations, especially women's health, because of issues including inadequate sanitation and environmental hygiene and a lack of financial independence to pay for treatment. Gender inequality is ingrained in societal value systems and has serious consequences for women's health, which therefore negatively affects happiness. As a result of social and economic discrimination, women are more likely to have poor health and higher rates of depression (He et al., 2018).

Happiness increases with income, especially for women. A higher income can give women financial security and life satisfaction. Higher income can also give women better access to healthcare, education, and leisure, improving their quality of life. Income can also help women achieve their goals and pursue their interests by increasing social mobility. If both a man and a woman contribute to the household income, the man will be happier. Those who live with both dependent children and parents have a lower likelihood of happiness than those who live independently. The finding that living with both parents and dependent

children does not decrease happiness more than it does for men is further evidence that women do not shirk their caregiving responsibilities (Qian & Qian, 2015). The income impact of women's jobs boosts their satisfaction with life since it increases their income and improves their quality of living, while the negative non-income consequences of women's jobs diminish their satisfaction. Higher workload and lower job satisfaction as a result of unmet expectations are two causes of this undesirable outcome. Women with lower incomes are more likely to have unfavourable non-income consequences than women with higher incomes (Broeck & Maertens, 2017).

The empirical results of this investigation have the upside of helping to inform the development of pertinent policy implications. The policy planning process ought to strive towards establishing an all-encompassing and encouraging environment that empowers female entrepreneurs to surmount obstacles, attain triumph, and encounter elevated levels of contentment and welfare in ASEAN countries while also exploring opportunities for Central and Eastern European countries. It is imperative for policymakers to proactively address gender biases and discriminatory practices that impede the advancement of women entrepreneurs. This can be achieved through various measures such as awareness campaigns, training programs, and policies that promote equal opportunities. Furthermore, it is imperative that policies prioritise the enhancement of women's access to entrepreneurial education, skill acquisition, and mentorship initiatives in order to equip them with the requisite knowledge and expertise. It is recommended that customized financial initiatives be established to cater to the specific requirements of enterprises owned by women. Additionally, the provision of access to relevant resources and networks is deemed necessary. It is recommended that policymakers engage in a thorough evaluation and potential modification of existing regulations in order to establish a favourable atmosphere. Additionally, policymakers should conduct awareness campaigns aimed at challenging preconceived notions and stereotypes. Furthermore, it is suggested that policymakers investigate successful initiatives from other regions as a means of expediting progress. Through the implementation of these comprehensive policies, policymakers have the potential to cultivate an inclusive and supportive ecosystem that enables women entrepreneurs to thrive, thereby contributing to increased prosperity, satisfaction, and social advancement in ASEAN as well as in Central and Eastern European countries.

6. Conclusions

This paper presents the results of an empirical study analysing annual data that focuses on the economies of nine Southeast Asian countries. We employed a panel data model to investigate the influence of female entrepreneurship on happiness with the following dependent variable: GHI and the following nine independent variables: FEPI, GDI, LGDPpc, HLEB, FMLC, GNST, POC, and HDI. This study applied the MM-QR technique for panel fixed effects given by Machado and Santos Silva (2019) for the period from 2006 to 2021.

The link between entrepreneurship and happiness is complex and multifaceted. Entrepreneurship can lead to personal and professional growth, financial stability, and fulfilment. It can also provide more control over work and life, scheduling flexibility, and the chance to help the local economy and community. These factors boost happiness. Entrepreneurship is risky, stressful, and difficult. Starting and running a business can be stressful and financially draining. Entrepreneurship can also be gender and socioeconomically unequal. Thus, entrepreneurship may improve happiness, but it does not guarantee it. It takes hard work, dedication, and the right mindset, as well as supportive policies and programs that address entrepreneurs' challenges, particularly those facing underrepresented groups. Entrepreneurship and happiness depend on individual circumstances, motivations, and external support.

Supporting women entrepreneurs in developing countries can have significant economic and social benefits, which can lead to greater happiness and well-being for individuals and communities. Women entrepreneurs can make significant contributions to the economies and societies of developing countries. By creating jobs, driving innovation, making a positive social contribution, and bringing diversity to the economy, women-owned businesses can unlock significant economic and social benefits, leading to greater well-being and prosperity for all. Nevertheless, women entrepreneurs in developing countries still face unique challenges, such as limited access to finance and resources. Therefore, it is crucial to support and empower women entrepreneurs by providing access to education, training, mentorship, and financing in order to create a more equitable and sustainable future for all.

Similar to any empirical undertaking, the research study is susceptible to certain limitations. Firstly, the study relies on panel data analysis with

a relatively small sample size, which may limit the generalisability of the findings. A larger and more diverse sample could provide a more comprehensive understanding of the relationship between female entrepreneurship and happiness. Secondly, the study focuses on a specific geographical region (ASEAN countries), which may have unique socio-cultural and economic characteristics. The findings may not be directly applicable to other regions or countries with different contexts and conditions. Additionally, the study mainly examines the direct relationship between female entrepreneurship and happiness without considering other mediating or moderating variables. Factors such as social support, access to resources, and institutional environments could potentially influence the relationship and should be explored in future research.

Similar to Southeast Asian countries, promoting women's economic empowerment and entrepreneurship is equally important in the countries of Central and Eastern Europe. To ensure the success and well-being of women in Central and Eastern Europe, it is crucial to create supportive policies that recognize and accommodate their reproductive, educational, and professional responsibilities. This includes implementing flexible work arrangements, promoting work-life balance, and addressing gender biases that may hinder women's progress in the workforce. By actively involving families, civil society organizations, businesses, and governments, these countries can create an enabling environment that supports women's economic participation. This collaborative approach can generate job opportunities, increase women's income levels, and contribute to overall economic growth. As a result, individuals and communities can experience improved happiness and well-being. Additionally, investing in the education and development of children and youth is vital for ensuring a prosperous future in Central and Eastern Europe. By providing quality education, skills training, and support systems for the younger generation, these countries can foster economic growth and an equitable distribution of prosperity, leading to enhanced happiness and well-being for society as a whole.

Abbreviations

The present paper employs a number of abbreviations:
 ASEAN: Association of Southeast Asian Nations
 FEPI: Female Entrepreneurship Indicator

FMLC: Freedom to Make Life Choices
 GDI: Gender Development Index
 GHI: Global Happiness Index
 GMM: Generalized Method of Moments
 GNST: Generosity
 HDI: Human Development Index
 HLEB: Healthy Life Expectancy at Birth
 LGDPpc: Logarithm Gross domestic product per capita
 LS: Least Squares
 MM-QR: Method of Moments Quantile Regression
 OECD: Organization for Economic Cooperation and Development
 OLS: Ordinary Least Squares
 POC: Perceptions of Corruption
 QR: Quantile Regression
 SPF: Sasakawa Peace Foundation
 VIF: The Variance Inflation Factor

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