

Assessing Taxpayer Satisfaction with Tax Administration in Quang Ninh Province, Vietnam

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Abstract: - Enhancing taxpayer satisfaction plays a crucial role in customer retention and service development. Inheriting the Information Systems Success Model (ISSM), this study evaluates the impact of the model's factors on the satisfaction of taxpayers using electronic tax (e-tax) services in Quang Ninh province. Data was collected from 1,529 questionnaires completed by business representative and 900 questionnaires answered by sole traders in Quang Ninh province. Through regression analysis, the research indicated determinants of tax payer satisfaction on the e-tax system, ranked from strongest to weakest, are information quality, system quality, and service quality.

Key-Words: - Electronic tax, e-tax system, information quality, system quality, service quality, taxpayer satisfaction.

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1 Introduction

Taxation is one of the most important sources for state budget and an effective tool for macroeconomic management. The application of information technology to tax declaration and payment systems is essential for the socio-economic development of our country. Electronic tax (e-tax) is the use of non-manual, ICT-based systems to handle core tax-administration tasks through online or equivalent digital channels rather than paper, [1]. E-tax services include the online provision of tax-related reference information, direct Question & Answer, tax registration, declaration, payment, refunds, and resolution of taxpayer complaints and denunciations, all aimed at creating convenience for taxpayers and reducing costs, time, procedures, and paperwork. E-tax offers significant practical benefits to both taxpayers and tax authorities.

Assessing e-tax service quality, particularly the satisfaction of corporate clients using this service, have attracted attention from the number of local tax

authorities and researchers. Numerous studies on e-tax services have been conducted in Vietnam as well as in other countries. Some studies have investigated taxpayer satisfaction with online tax declaration services [2] or online tax payment services [3]. Overall, previous research has been employing various approaches and primarily utilizing different variations of the service quality model proposed by [4]. However, research on corporate client satisfaction on comprehensive e-tax services (including both online declaration and payment) in local level. Notably, no research in Vietnam has applied the ISSM [5] - a more comprehensive model that considers multiple quality dimensions rather than focusing solely on service quality—to investigate customer satisfaction with internet-based services. Therefore, this paper is conducted to investigate the determinants of taxpayer satisfaction with e-tax services in Quang Ninh province, based on the ISSM framework. The scope of taxpayers in this study is limited to businesses, excluding business households.

The findings are expected to provide valuable insights for tax management agencies and e-tax service providers, enabling them to devise solutions for further enhancement. Additionally, it aims to suggest a new model for future research on customer satisfaction with IT-based services.

2 Literature Review and Hypothesis Development

2.1 Electronic Tax Services and Customer Satisfaction

According to [6], a service is a behavior, process, or performance that creates use value to satisfy customer needs and expectations. Meanwhile, [7] defines a service as an economic activity that creates value and provides benefits to customers at a specific time and place as a result of a desired change, either for or on behalf of the service user. [8] view services as activities or benefits that a business can offer to customers to establish, strengthen, and expand long-term relationships and cooperation.

E-tax services can be considered as a system involving the use of internet technologies, websites, and tax software for a range of tax administration activities and compliance purposes. This process begins with tax preparation and filing and extends to tax payment. It commences when taxpayers or their agents complete tax returns and submit them via the internet to a tax authority's processing center. Arguably, e-tax is one of the most prominent applications of e-government.

Customer satisfaction is an emotional state regarding a previously used product or service, [9]. It is the degree of a person's feeling derived from comparing the perceived performance of a product/service with their expectations. Generally, satisfaction is considered as a feeling of contentment when customers' expectations for a product or service are met. Enhancing user satisfaction is a crucial prerequisite for customer retention and service development, a principle that equally applies to e-tax services.

2.2 Determinants of Business Satisfaction with e-tax Services

The number of studies have been conducted to develop e-service quality measurement instruments in the areas of online retailing, website design and

online services. [10] conducted a study on internet service quality based on their previous study on service quality in traditional distribution channels (SERVQUAL) and developed the E-S-QUAL scale based on seven factors. The seven factors are divided into two separate scales namely core dimensions and recovery dimensions. Wherein the ES-QUAL scale refers to the core dimensions of efficiency, system availability, responsiveness and security and the E-Rec S-QUAL scale measures the internet service quality dimensions of responsiveness, compensation and contact, [10]. [11] developed the SITEQUAL e-service quality scale which includes four dimensions: easy to use, design, speed and responsiveness. Later, [12] developed COMQ, an e-service quality instrument which later evolved into e-TailQ with quality dimensions of reliability, security and customer service. In addition, [13] also developed an e-service quality instrument called WEBQUAL which includes 12 factors: information, interaction, reliability, response time, web design, intuitiveness, flow, innovation, integration, communication, business processes and sustainability.

This study focuses on understanding the factors that determine user satisfaction with e-tax services, measuring user perceptions of service benefits, and thereby pointing out the quality dimensions that tax authorities should focus on to improve user satisfaction in the future. An overview of previous literature on related research models was reviewed to systematize the dimensions of e-service quality that affect user satisfaction, thereby proposing a theoretical model for the study. The proposed model is based on the ISSM for user satisfaction developed by [5]. The ISSM model includes three main groups of factors: *Information quality*, *System quality*, and *Service quality*).

2.2.1 Information Quality

According to [5], the information quality of a system is measured by dimensions such as personalization, completeness, relevance, understandable, and security. The e-tax system benefits taxpayers by allowing them to access instructional information, complete and file tax returns, and make payments online, thereby saving time, effort, and costs. Consequently, the information quality of the e-tax system strongly impacts taxpayer satisfaction. Based on this, the following hypothesis is proposed:

H1: The higher information quality of the system, the higher the satisfaction of businesses using the electronic tax system.

2.2.2 System Quality

[5] measure system quality through dimensions of usability, availability, reliability, adaptability, and response time. While the adoption of the e-tax system can benefit taxpayers and enhance service delivery efficiency, public understanding and acceptance of the system remain crucial. Creating a fast, reliable, and secure service should be a primary priority for any government, and leveraging technology in public service delivery is a key means to achieve this. Hence, the following hypothesis is supposed:

H2: The higher the perceived system quality, the higher the satisfaction of taxpayers using the electronic tax system.

2.2.3 Service Quality

Service quality, or the overall support provided by the service provider for the e-tax system, is measured by the dimensions of assurance, empathy, and responsiveness, [5]. Service quality is a key determinant of user satisfaction, [14]. For users, the most critical aspect of service quality in the e-tax system is security. Accordingly, the following hypothesis is suggested:

H3: The higher the perceived service quality, the higher the satisfaction of taxpayers using the electronic tax system.

The proposed research model, including hypotheses H1, H2, and H3, is illustrated in Figure 1 (Appendix).

3 Research Methodology

3.1 Research Design

Additional criteria are used to measure the 3 factors in this paper.

Information quality factor is measured through the following 7 criteria: Does the information on the electronic tax interface meet the needs of businesses? Is the information rich? Are the operations performed on the electronic tax system easy to perform? Is the information extracted from the system accurate? Is the information on the website understandable? Are the features on the website very useful to perform tasks? Each menu of the website is always provided with useful information?

System quality factors are measured through the following 8 criteria: (1) E-tax application is understandable and easy to use? (2) Transactions procedures on the e-tax system are easy and quick? (3) Can the e-tax platform be use anytime, anywhere? (4) Do enterprises self-declare and pay taxes on the website quickly? (5) Do enterprises find information on the website easily? (6) Are features on the website useful to perform tasks? (7) Is each menu of the website always provided with useful information? (8) Is data upload speed stable?

Service quality factor is measured through 06 criteria: (1) Do enterprises feel safe when using e-tax services? (2) Do the electronic tax software system always aims to facilitate people in use, (3) Are the instructions for using the electronic tax platform detail and understandable, (4) Is the information data on the electronic tax declaration encrypt and highly secure, (5) Do enterprises feel safe when logging in to declare and pay taxes with digital signatures, (6) Do enterprises feel really safe when declaring and paying taxes electronically.

3.2 Data Collection

Data were collected from businesses operating across Quang Ninh province. The research questionnaires were collected from businesses from January 2024 to May 2024 by collaboration between authors and the provincial tax department.

3.3 Data Analysis

The statistical software SPSS and Smart-PLS were applied for data processing and analysis. The valid data were first subjected to descriptive statistical analysis. Subsequently, Confirmatory Factor Analysis (CFA) was used to refine the measurement scales and test for reliability and convergent validity. Finally, multiple regression analysis was utilized to test the research hypotheses.

4 Results

4.1 Descriptive Statistics of Surveyed Enterprises

An analysis of the 1,529 enterprises by ownership illustrates dominance of the non-state sector. This sector accounts for 1,485 firms, constituting 97.1% of the entire survey sample. In which, the public and foreign-invested sectors are represented the lowest rate at 2.7% and 0.1%, respectively.

The transportation sector accounts for the largest share with 572 firms, followed by a collective of other miscellaneous sectors at 21.8% and the construction sector at 16.7%. Industry and mining sector, cruise lines and karaoke and massage services only constitute 2.7%, 2.1%, and 1.8%, respectively.

In terms of firm size, most of surveyed entity is small and medium-sized enterprises (SMEs). In which, 52.3% of the samples are enterprises employing 10 to 49 people. Firms with 50 to 199 employees constitutes 29.1% while micro-enterprises with fewer than 10 employees accounts for 12.2%. It is observed that the number of firms employing more than 200 people are significant lower in comparison with another firm. There are only 91 firms (6%) with 200 to 499 employees and 7 entities (0.5%) employ between 500 and 999 people are surveyed. Full details are available in Table 1 (Appendix).

4.2 Reliability and Validity of Measurement Scales

The reliability results suggest that all measurement constructs are acceptable. Cronbach's Alpha values were above 0.6 and Composite Reliability scores exceeded 0.7 presents a satisfactory level of internal consistency. Moreover, the constructs showed adequate convergent validity, as all outer loadings were greater than 0.5 and the Average Variance Extracted (AVE) values also met the recommended threshold of 0.5. The detailed results of the reliability tests are shown in Table 2 (Appendix).

4.3 Hypothesis Testing

The regression analysis results show that **information quality** and **service quality** have a positive and statistically significant impact on business satisfaction with the e-tax system ($\beta > 0$ and $p\text{-value} < 0.05$) However, the **system quality** factor was found to have no significant effect on business satisfaction ($p\text{-value} = 0.162$, higher than the 0.05 threshold). Therefore, hypotheses H1 and H3 were accepted, while H2 was not supported. Table 3 (Appendix) reports results regarding the regression analysis.

From the test result, information quality is considered as an important driver of satisfaction. By improving understandability, relevance, and easy accessibility of information on the e-tax portal, the user experience and trust in the tax authority's professionalism would be enhanced, and technical

barriers would be reduced. [15] and [16] reported similar findings that accurate, useful, and reliable information have direct impact on business satisfaction in Vietnam. Hence, it can be affirmed that improving information quality with criteria such as easy access, accuracy, usefulness and suitability to actual needs not only increases satisfaction but also contributes to improving the tax compliance efficiency of enterprises.

While the regression result showed that system quality was not statistically significant in this particular model, the descriptive aspects remain important. A user-friendly e-tax application with streamlined procedures and stable 24/7 access plays an important role in enhancing user experience. The importance of system quality is well-established in the literature, [5], [16]. It is suggested that while it might not have been a distinguishing factor in this sample, its foundational role should not be overlooked.

Service quality, especially its security and support aspect, have a substantial impact on business satisfaction. Businesses are more likely to adopt the platform if encryption and digital signatures are secure and the system's guidance is clear and well-supported. [5], [15] and [16] also suggested that security and effective support are vital for user satisfaction.

4.4 Differences in Satisfaction among Individuals

4.4.1 Comparison of Satisfaction Across Ownership Types

In order to examine whether satisfaction levels differ across ownership types, firms were classified into three groups: state-owned enterprises (SOEs), foreign-invested enterprises (FIEs), and non-state enterprises. A one-way analysis of variance (ANOVA) was employed to test for statistically significant differences in satisfaction among the above three groups.

The results of the variance homogeneity test indicate that the groups have unequal variances (*Levene's test* $p\text{-value} = 0.013$). However, the results of the F-test show that there is no statistically significant difference in satisfaction among enterprises with different ownership types (*F-test* $p\text{-value} = 0.485$).

Detailed results are presented in Table 4.

Table 4. Test of Homogeneity of Variances

Levene			
Statistic	P-value	F	P-value
4.348	.013	.729	.483

Source: created by the authors

4.4.2 Comparison of Satisfaction Across Business Types

To investigate whether satisfaction levels differ across business types, enterprises were categorized into four groups: joint-stock companies, limited liability companies (LLCs), private enterprises, and other business forms. One-way analysis of variance (ANOVA) was applied to test for statistically significant differences in satisfaction among these four categories.

The homogeneity of variances assumption was assessed by using Levene's test before employing ANOVA. The results show that the variances across groups are unequal (*Levene's test p-value* = 0.009), suggesting a violation of the homogeneity assumption. However, the ANOVA F-test results indicates that there are statistically significant differences in satisfaction levels across different business types (*p-value* = 0.047).

It is proved that the type of business organization may influence satisfaction levels among enterprises. Detailed statistical results are presented in Table 5.

Table 5. Test of Homogeneity of Variances

Levene			
Statistic	P-value	F	P-value
3.843	.009	2.651	.047

Source: created by the authors

To determine where satisfaction differences occur among the groups, a post-hoc test using the Tamhane procedure was applied. The results show that joint-stock companies report a higher satisfaction compared to limited liability companies (LLCs) (mean difference = 0.198; *p-value* = 0.006).

Similarly, private enterprises demonstrate lower satisfaction levels than limited liability companies. These results suggest that satisfaction varies across specific business types, particularly between joint-stock companies, LLCs, and private enterprises.

Detailed results of the post-hoc analysis are presented in Table 6 (Appendix).

4.4.3 Comparison of Satisfaction Across Business Sectors

To examine whether satisfaction levels differ across business sectors, enterprises were classified into eight sectors. A one-way analysis of variance (ANOVA) was employed to test for satisfaction differences among these sectors. Levene's test proves unequal variances across groups (*p* = 0.001), suggesting that the homogeneity of variance assumption is violated. However, the ANOVA F-test results reveal statistically significant in satisfaction levels among enterprises operating in different sectors (*p-value* = 0.000). Detailed results are presented in Table 7.

Table 7. Test of Homogeneity of Variances

Levene			
Statistic	P-value	F	P-value
3.487	.001	9.018	.000

Source: created by the authors

To further examine differences in satisfaction, a Tamhane post-hoc test was applied. The test results suggest that enterprises operating in the cruise lines sector demonstrate higher satisfaction than others. Additionally, firms in the food and beverage sector are more satisfied than the construction firms. Detailed results of the post-hoc analysis are presented in Table 8 (Appendix).

4.4.4 Comparison of Satisfaction Across Enterprise Sizes

To examine whether satisfaction levels differ across enterprise sizes, firms were classified into five size categories. A one-way analysis of variance (ANOVA) was run to test for satisfaction differences among these categories. The Levene's test result suggests that variances differ across groups (*p* = 0.000). As a result, the assumption of homogeneity of variances is not met.

However, the ANOVA results show significant differences in satisfaction across firms of different sizes (*p* = 0.000), as detailed in Table 9.

Table 9. Test of Homogeneity of Variances

Levene			
Statistic	P-value	F	Sig.
18.766	.000	5.726	.000

Source: created by the authors

To investigate which groups differ significantly in satisfaction, a Tamhane post-hoc test was used.

The results show that enterprises with fewer than 10 employees tend to be less satisfied than those with 10 to 499 employees. Full results are shown in Table 10 (Appendix).

5 Conclusion

The satisfaction of business taxpayers with e-tax services in Quang Ninh province was assessed in this study. The findings suggest that information quality and service quality play an important role in business satisfaction. In contrast, system quality is not statistically significant in the final model.

These results are important for tax authorities and policymakers. To enhance satisfaction of tax payers, tax agencies should focus on making information clearer, more relevant, and easier to access, while strengthening security features and user support on the e-tax platform. For researchers, this study offers a basis for further research on e-tax services, particularly by exploring alternative models or different taxpayer groups.

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APPENDIX

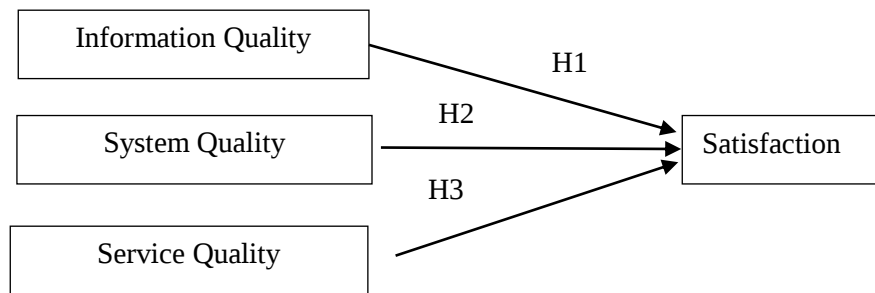


Fig. 1: Proposed Research Model of Taxpayer Satisfaction with E-Tax Services, Based on the Information Systems Success Model (ISSM)
Source: Adapted from [5]

Table 1. Description of survey subjects

		Number	Rate
Ownership	Public sectors	42	2.7
	Foreign – invested sectors	2	0.1
	Non-state sector	1485	97.1
Business sector	Karaoke and massage services	28	1.8
	Industry and mining	42	2.7
	Construction	255	16.7
	Food and beverage	139	9.1
	Cruise lines	32	2.1
	Food	128	8.4
	Transportation	572	37.4
	Others	333	21.8
Labor scale	Less than 10 employees	186	12.2
	From 10 to 49 employees	800	52.3
	From 50 to 199 employees	445	29.1
	From 200 to 499 employees	91	6
	More than 500 employees	7	0.5
	Total	1529	100

Source: created by the authors

Table 2. Reliability tests

	Outer loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
CLDV1	0.923	0.953	0.962	0.808
CLDV2	0.87			
CLDV3	0.926			
CLDV4	0.873			
CLDV5	0.909			
CLDV6	0.891			
CLHT1	0.872	0.963	0.969	0.796
CLHT2	0.929			
CLHT3	0.901			
CLHT4	0.945			
CLHT5	0.875			
CLHT6	0.836			
CLHT7	0.915			
CLHT8	0.858			
CLTT1	0.865	0.961	0.967	0.809
CLTT2	0.899			
CLTT3	0.92			
CLTT4	0.928			
CLTT5	0.899			
CLTT6	0.89			
CLTT7	0.894			
SHL1	0.867	0.681	0.79	0.56
SHL2	0.682			
SHL3	0.681			

Source: created by the authors

Table 3. Regression result

	Unstandardized Coefficients		Standardized Coefficients	t	p-value	VIF
	β	Std. Error	Beta			
(Constant)	.776	.071		10.974	.000	
Information quality	.241	.069	.217	3.465	.001	7.2
System quality	.118	.084	.110	1.398	.162	6.5
Service quality	.547	.073	.504	7.520	.000	8.3
R² =0.177						
p-value of F-stat=0.000						

Source: created by the authors

Table 6. Post-Hoc test

Table 3. Post hoc test				95% Confidence Interval	
		Mean Difference	P-value	Lower Bound	Upper Bound
State	Foreign	.19824*	.006	.0412	.3552
	Non-state sector	.01577	.994	-.0592	.0907
	4	.10866	.923	-.2177	.4350
Foreign	State	-.19824*	.006	-.3552	-.0412
	Non-state sector	-.18247*	.011	-.3357	-.0292
	State	-.01577	.994	-.0907	.0592
Non-state sector	Foreign	.18247*	.011	.0292	.3357
	State	-.10866	.923	-.4350	.2177
	Foreign	.08958	.979	-.2569	.4360

Source: created by the authors

Table 8. Post-Hoc test

(I) A3				Mean Difference (I-J)	p- value	95%	
						Lower Bound	Upper Bound
Karaoke services	and	massage	Industry and mining	-.02381	1.000	-.3547	.3070
			Construction	-.02680	1.000	-.3133	.2597
			Food and beverage	-.19784	.626	-.4958	.1001
			Cruise lines	-.65625*	.000	-	-.2145
			Food	-.13021	.997	-.4487	.1883
			Transportation	-.00524	1.000	-.2861	.2756
			Others	-.04655	1.000	-.3317	.2386
Industry and mining			Karaoke and massage services	.02381	1.000	-.3070	.3547
			Construction	-.00299	1.000	-.2271	.2211
			Food and beverage	-.17403	.435	-.4123	.0642
			Cruise lines	-.63244*	.000	-	-.2244
			Food	-.10640	.998	-.3700	.1572
			Transportation	.01856	1.000	-.1986	.2357
			Others	-.02274	1.000	-.2450	.1996
Construction			Karaoke and massage services	.02680	1.000	-.2597	.3133
			Industry and mining	.00299	1.000	-.2211	.2271
			Food and beverage	-.17104*	.020	-.3284	-.0137
			Cruise lines	-.62945*	.000	-	-.2528
			Food	-.10341	.946	-.3005	.0936
			Transportation	.02155	1.000	-.0937	.1368
			Others	-.01975	1.000	-.1466	.1071
Food and beverage			Karaoke and massage services	.19784	.626	-.1001	.4958
			Industry and mining	.17403	.435	-.0642	.4123
			Construction	.17104*	.020	.0137	.3284
			Cruise lines	-.45841*	.008	-.8430	-.0738
			Food	.06763	1.000	-.1475	.2827
			Transportation	.19260*	.001	.0474	.3378
			Others	.15130	.061	-.0030	.3056
Cruise lines			Karaoke and massage services	.65625*	.000	.2145	1.0980
			Industry and mining	.63244*	.000	.2244	1.0405
			Construction	.62945*	.000	.2528	1.0061
			Food and beverage	.45841*	.008	.0738	.8430
			Food	.52604*	.002	.1266	.9255
			Transportation	.65101*	.000	.2783	1.0237
			Others	.60970*	.000	.2341	.9853
Food			Karaoke and massage services	.13021	.997	-.1883	.4487
			Industry and mining	.10640	.998	-.1572	.3700
			Construction	.10341	.946	-.0936	.3005
			Food and beverage	-.06763	1.000	-.2827	.1475
			Cruise lines	-.52604*	.002	-.9255	-.1266
			Transportation	.12496	.646	-.0626	.3126

(I) A3		Mean Difference (I-J)	p- value	95%	
				Lower Bound	Upper Bound
Transportation	Others	.08366	.996	-.1110	.2784
	Karaoke and massage services	.00524	1.000	-.2756	.2861
	Industry and mining	-.01856	1.000	-.2357	.1986
	Construction	-.02155	1.000	-.1368	.0937
	Food and beverage	-.19260*	.001	-.3378	-.0474
	Cruise lines	-.65101*	.000	-	-.2783
	Food	-.12496	.646	-.3126	.0626
Others	Others	-.04130	1.000	-.1523	.0697
	Karaoke and massage services	.04655	1.000	-.2386	.3317
	Industry and mining	.02274	1.000	-.1996	.2450
	Construction	.01975	1.000	-.1071	.1466
	Food and beverage	-.15130	.061	-.3056	.0030
	Cruise lines	-.60970*	.000	-.9853	-.2341
	Food	-.08366	.996	-.2784	.1110
	Transportation	.04130	1.000	-.0697	.1523

*. The mean difference is significant at the 0.05 level.

Source: created by the authors

Table 10. Post-Hoc test

(I) A43				95%	Confidence
		Mean Difference (I-J)	p-value	Lower Bound	Upper Bound
Less than 10 employees	From 10 to 49 employees	-.13202*	.000	-.2213	-.0427
	From 50 to 199 employees	-.20116*	.000	-.3074	-.0949
	From 200 to 499 employees	-.23811*	.000	-.3698	-.1065
	More than 500 employees	-.05863	1.000	-.6639	.5467
From 10 to 49 employees	Less than 10 employees	.13202*	.000	.0427	.2213
	From 50 to 199 employees	-.06914	.339	-.1637	.0255
	From 200 to 499 employees	-.10609	.142	-.2289	.0167
	More than 500 employees	.07339	1.000	-.5355	.6822
From 50 to 199 employees	Less than 10 employees	.20116*	.000	.0949	.3074
	From 10 to 49 employees	.06914	.339	-.0255	.1637
	From 200 to 499 employees	-.03695	.997	-.1722	.0983
	More than 500 employees	.14254	.989	-.4613	.7464
From 200 to 499	Less than 10 employees	.23811*	.000	.1065	.3698
	From 10 to 49 employees	.10609	.142	-.0167	.2289
	From 50 to 199 employees employees	.03695	.997	-.0983	.1722
	More than 500 employees	.17949	.954	-.4173	.7762
More than 500 employees	Less than 10 employees	.05863	1.000	-.5467	.6639
	From 10 to 49 employees	-.07339	1.000	-.6822	.5355
	From 50 to 199 employees	-.14254	.989	-.7464	.4613
	From 200 to 499	-.17949	.954	-.7762	.4173

*. The mean difference is significant at the 0.05 level.

Source: created by the authors

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

The authors equally contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

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Conflict of Interest

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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