

Evaluating the Effect of Value Added Tax on the Performance of Enterprises (Case Study: Manufacturing and Service Industries in the Khorasan Provinces)¹

Hadi Ghavami²

Assistant Professor, Faculty of Economic and Administrative Sciences, Ferdowsi University of Mashhad, Deputy Chairman of the Planning, Budget, and Computing Commission of the Islamic Consultative Assembly

Mohammad Ali Shabani, Razieh Rahimi

Members of the East Electrical Economic Energy Research Group

Abstract

The Value Added Tax (VAT) system, the law of which has been ratified and enforced in Iran since 2008, is one type of indirect tax that has affected enterprises. Despite the achievements of the VAT system in the country, as the legal deadline for its pilot enforcement has expired, any decision regarding the permanence of the so-called law and its extension to the final chain requires re-engineering and evaluating its implementation. Considering the outcomes of the VAT tax system, an attempt has been made to examine the impact of this type of tax on production, employment, size, and profitability of manufacturing and service enterprises in the Khorasan Razavi, North, and South Khorasan provinces. The validity, reliability, and normality of the questionnaires were tested using Cronbach's alpha, Kolmogorov-Smirnov, and Shapiro-Wilk tests. The results of hypothesis testing using factor analysis and the two-dimensional nonparametric test indicated that VAT has a negative and significant effect on the production, employment, size, and profitability of enterprises.

Keywords: Production, Enterprise Size, Employment, Value Added Tax, Iran

1. Introduction

Taxation is one of the most critical ways for governments to finance themselves. As one of the tools for implementing financial policies, via taxation, the government can control economic activities. Many of the government's economic tasks and decisions, including interfering in income distribution, resource allocation, and the like, are implemented through taxation. The government needs financial resources through taxation to enforce its policies. Value-added tax (VAT) is one of the types of taxes enforced in developed countries and some developing countries.

VAT is a type of multi-stage tax that is levied at different stages of the import-production-distribution chain, based on a percentage of the value added to the manufactured goods or provisioned services. This type of tax is transferred from each element of the chain to the next element at each stage until the consumer pays it in the last stage. VAT is a new tax compared to other standard taxes. Eliminating the shortcomings in the law can play an essential role in satisfying taxpayers and providing a sustainable income for the government as VAT is highly capable of generating sustainable income for the government.

The remainder of this article is divided into five sections. In Section 1, the basics of VAT are briefly described. Section 2 discusses the research background from the inside and outside of Iran. Section 3 tests the validity, reliability, and normality of the questionnaires. Section 4 analyzes the data and their status and tests the hypotheses. Finally, Section 5 presents the conclusion to this study.

2. Theoretical foundations of VAT

The first VAT proposal was offered in 1918 by a German businessman named Wilhelm von Siemens, who considered VAT to be "refinement or improvement to German financial turnover." VAT is a type of multi-stage tax that is levied at different stages of production and distribution based on a percentage of value-added to manufactured goods or services provisioned on different bases.

¹The current article is extracted from a research proposal examining the challenges of implementing the VAT law and identifying its impact on Iran's macroeconomic indices in the Ferdowsi University of Mashhad with cooperation East Electrical Economic Energy Research Group.

² qavami_h@um.ac.ir

2.1. VAT based on consumption

Consumption-based VAT has been used more than the other two tax bases. In this type of tax, each enterprise is allowed to deduct capital expenditures as well as the depreciation of its physical capital from its tax base. Therefore, in the consumption method, the tax base of each enterprise is associated with gross receipts of the enterprise minus costs related to intermediary materials, capital goods, and their depreciation (Tayeb Nia, 2005).

Global observations show that in most countries, VAT based on consumption has been used as an alternative to the consumption tax system. Hence, to encourage production and investment, the purchase of capital goods is deducted from the gross value added, and as a result, the net investment will not be subject to taxation, and VAT will be introduced on a more limited consumption basis. In this taxation system, export goods are exempted from paying taxes at different stages of production and distribution; on the contrary, imported goods are subject to tax, which helps to improve the country's foreign trade balance and relatively increase its export potential.

2.2. VAT based on income

In the case of income-based VAT, enterprises will be allowed to deduct depreciation expenses from their tax base. As companies consume a percentage of their physical capital as a result of production, the tax is levied on the net income of the enterprise instead of its gross income (Tayeb Nia, 2005). In other words, this method involves net investment instead of total investment expenses.

2.3. VAT based on gross production

In VAT based on gross production, enterprises are not allowed to deduct the purchase price of capital goods and their depreciation costs when calculating VAT. Thus, the VAT base will include wages and salaries, capital gain, capital lease, profits, and depreciation. Since capital purchases and depreciation are not deductible, the VAT will be levied on all income earned by the enterprise from the sale of its products. Therefore, in macroeconomic dimensions, the VAT base is the total gross domestic production (GDP) of the country, or in other words, the market value of all manufactured goods and services (Tayeb Nia, 2005). In this method, all manufactured and consumer goods are taxed, and no tax exemption is considered for the purchase of capital goods. According to the enforcement of the VAT Act from September 2008, companies and economic enterprises were obliged to receive a percentage of the value-added of their goods and services from the buyer and pay it to the Tax Administration. However, since the enforcement of the VAT Act, enterprises have faced many problems and challenges because this law does not correspond to reality due to its appropriate goals, and there exists a discrepancy between mentality and objectivity (theory and practice). Thus, VAT has affected sales rates, profits, production, and enterprise size, besides modifying and reforming consumption patterns. Therefore, evaluating and determining the extent and nature of this impact plays a significant role in implementing and codifying relevant government laws and regulations and helps manufacturing enterprises to make appropriate decisions.

3. Experimental studies

Some of the studies that have examined the effect of VAT on the behavior of companies and economic enterprises in various dimensions, such as executive effects, are as follows:

Nie, Fang, and Li (2010) examined the effects of VAT restructuring on corporate behavior and performance. The restructuring was found to significantly increase investment in fixed assets and reduce the ratio of labor to machinery. Although replacement of the labor force with machinery has increased the productivity of companies, it has negatively affected employment rates.

Arene and Ndomadu (1997) examined the impact of VAT on the structure of capital and profitability of Nigeria's non-alcoholic beer industry. They found that analyzing their debt ratio; VAT reduces production capacity and net profit of companies through reducing consumption and sales volume and affects their capital structure.

Gholami (2014) conducted a study to present a roadmap for reforming the VAT Act and its executive by-laws in Iran and assessed the executive components of the VAT system in 22 countries implementing this taxation and compared them with Iran. He suggested that VAT in Iran, like the studied countries, is based on consumption and destination. In most countries, registration criteria are the annual turnover or financial turnover subject to annual tax, while in Iran, the nature of economic activities is also applied in addition to the use of these criteria.

Rajab Beigi, Rafat, and Mozaffari Panah (2013) used the information of 89 stock exchange companies of the Tehran Stock Exchange (2004–2010) and the panel data method and evaluated the effect of tax on profitability indicators. The results in all estimates indicated the negative and significant impact of taxation on various profitability indicators.

Ansari and Abbasi (2012) tested the impact of VAT on the capital structure as well as profitability and taxable income of companies and economic institutions. Their statistical population consisted of companies listed on the Tehran Stock Exchange (2005-2009). They applied Spearman and Kendall Tau correlation coefficients to test the hypotheses and demonstrated that VAT increases profitability and, consequently, the companies' taxable income through a direct effect on their capital structure.

Manouchehri et al. (2011) studied the ratios of cash turnover of pharmaceutical, food, and automotive industries before and after the enforcement of the VAT Act. The data of 70 companies in six years (three years before and three years after the enforcement of the VAT Act) were examined using paired t-test. It was indicated that, at 95% confidence interval and in all three industries, the ratio of operating cash turnover, interest coverage ratio, capital expenditure ratio, and sales quality ratio did not change after entry into force as compared to before enforcement of the act. However, the quality of the profit ratio did not change merely in the pharmaceuticals and food industries. Though, this ratio decreased in the automotive industry after enforcement of the VAT Act.

In a study, Faridzad, Parvin, and Banoui (2011) examined the value effects of VAT on the Iranian economy. They demonstrated that if the VAT is applied at the rate of 3%, it is predicted that the general price index will increase by about 1.5%, and after exemptions, this price increase will reach 0.8 %. The highest price increase is 2.99% related to real estate services, which is mainly due to the non-tradability of this product in the economy and the increase in demand for its supply in the short-term.

Saeedi and Nehtani (2009) analyzed the effect of replacing VAT by income tax of non-manufacturing companies for 283 companies in Golestan Province using the Wilcoxon nonparametric tests and Friedman test. Replacing VAT at rates of 1.5 and 3 percent by income tax of non-manufacturing companies could reduce the province's tax revenues.

4. Statistical population and study samples

4.1. Statistical population

The statistical population can be defined as follows: the statistical population involves elements that we would infer, and a sample population under study is selected in a predetermined way to make inferences about the whole population from this section through the selection method (Pashashrifi, 2011). Therefore, according to the thematic, temporal, and spatial scope of the research, the statistical population of the research includes production and service enterprises in the Khorasan Razavi, North, and South Khorasan provinces, in 2017. Accordingly, the statistical population constitutes about 7,000 members.

4.2. Selecting a statistical sample

Sampling is essential since examining all members of the population is not cost-effective, and it takes much time. A sample is a set of signs selected from a section or group of a larger population so that the attributes of its members represent the quality and characteristics of the larger population (Sakaran, 2012). The selection of sample size in the design of a study is one of the critical issues to be considered since it reflects and follows the realities of the population. The sample size, as a factor, affects the mean error. Hence its accuracy increases the clarification of the sample. Besides, the accuracy and precision of sampling reduce the cost of observations and evaluations (Khaki, 2013).

In this study, the Cochran-Orcutt formula and the random sampling method have been used to obtain the sample size.

where:

Sample size: n

Population size: $N = 7000$

Acceptable reliability coefficient criterion: $Z = 1.96$

Error degree or possible accuracy: $d = 0.5$

A proportion of the population with a particular trait: $p = 0.5$

A proportion of the population without a specific trait: $q = 0.5$

After entering the values in the above formula, the sample size is determined as 370. Nevertheless, to test the hypotheses, the data were obtained from 656 manufacturing and service enterprises.

5. Validity and reliability of questionnaires

When qualitative variables are collected using a questionnaire or interview, the two concepts of validity and reliability are of particular importance.

5.1. Evaluating the validity of the questionnaire

Validity indicates whether our proposed tool can measure the variable or structure for which it is constructed. Validity shows how much a measuring instrument measures what we think. Thus, validity is the degree of concordance between the conceptual definition of a variable and its operational definition.

Factor analysis is one of the statistical methods for analyzing data in a data set. This method was proposed by Karl Pearson (1901) and Charles Spearman (1904) when measuring intelligence and is used to determine the most influential variables when the number of variables studied is high, and the relationships between them are unknown. In this method, the variables are placed in factors so that the percentage of variance decreases from the prime factor to the next factors. Therefore, the variables that are placed in the prime factors are the most effective. Factor analysis is, in fact, the expansion of the analysis of the main components. In general, the purpose of factor analysis is summarized as follows:

- A) Interpretation of internal correlation between several observable traits through factors that are not observable and called factors. These invisible factors are the common reason for the correlation between the main variables.
- B) Presenting a combining method and summarizing a large number of variables in several distinct groups
- C) Identifying the most effective variable among different variables

Factor analysis was used to evaluate the validity of the questionnaire, the results of which are provided in the following steps.

Step 1: Identifying the possibility of factor analysis on the data

To find out whether VAT data can be reduced to several factors, Kaiser-Meyer-Olkin (KMO) and Bartlett's statistics were used.

Based on the KMO test score (0.863), the research data can be reduced to several underlying and fundamental factors. In other words, considering the result of the KMO test is higher than 0.7, it can be claimed that the correlations between the data will be suitable for factor analysis. Also, the results of Bartlett's test, significant at the error level of less than 0.01, indicate that the correlation matrix between the items is not an identity or unit matrix (i.e., there is a high correlation between the items inside each factor). On the other hand, there is no correlation between the items of one factor and the items of another factor. Presuming that Sig is also less than 0.05, the correlations shown will be significant.

Table 1: Results of KMO and Bartlett's tests

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.863
Bartlett's Test of Sphericity	Approx. Chi-Square	3520.967
	df	190
	Sig.	.000

Source: Research Calculations

Step 2: Identifying the contribution of each factor in explaining the total variance of the items

The next issue in factor analysis is to identify what percentage of the variance of the variables set each factor has been able to determine, which is elucidated by the sum of variances provided in Table 2. This table shows the eigenvalues, percentage of variance, and percentage of cumulative variance from the data set for each factor.

Section 1: This section, called "factor," shows the initial number of factors in the first stage of factor analysis, and its number is always equal to the total number of variables entered in the analysis.

Section 2: This section is called the initial eigenvalues. The eigenvalues show the percentage of variance and the cumulative percentage of variance for each factor. Factor analysis was carried out on the correlation matrix, so all variables are standardized (i.e., the variance of each variable is equal to 1, and the total variance is equal to the number of variables used in the analysis, which is equal to 20).

Section 3: This section shows the extraction sums of squared loadings. The values of this section show the distribution of variance after extracting the factors. The values of this section are calculated as in the first section, and the only difference is that in this section, the values are obtained in terms of common variance, and therefore, the values are always smaller than the values of the first section. The percentage of variance explained in this table is 24.938.

Table 2: Explaining the sum of the variance of items

Component	Total variance explained					
	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.988	24.938	24.938	4.988	24.938	24.938
2	3.168	15.840	40.778			
3	1.549	7.743	48.521			
4	1.053	5.264	53.785			
5	.841	4.203	57.988			
6	.834	4.168	62.156			
7	.818	4.089	66.245			
8	.755	3.776	70.021			
9	.687	3.433	73.454			
10	.679	3.396	76.850			
11	.605	3.027	79.876			
12	.572	2.862	82.739			
13	.540	2.700	85.439			
14	.528	2.639	88.078			
15	.486	2.432	90.510			
16	.471	2.357	92.867			
17	.442	2.212	95.079			
18	.352	1.762	96.841			
19	.329	1.647	98.488			
20	.302	1.512	100.000			

Source: Research Calculations**Step 3:** Identifying the correlation matrix between items and factors and categorizing each item in each factor

The table below shows the correlation matrix between items and factors. The correlation between items and factors varies between -1 and +1. After selecting the factor matrix, we must select the significant factor loadings. The following rule is applied:

Factor loading 0.3

Factor loading 0.4

Factor loading 0.5



Acceptable significance level

More acceptable significance level

Highly acceptable significance level

The results of the factor loading matrix show that 75% of the items are above 0.3, so the validity of the questionnaire is confirmed.

Table 3: Understanding the correlation matrix between items

Component	1
How familiar are you with the VAT system and its enforcement mechanisms?	.658
How effective do you think the amount of tax penalty has been on the timely payment of VAT?	.705
To what extent do you think VAT affects employment in economic enterprises?	.375
To what extent do the incentives and exemptions in the VAT system affect employment?	.164
How accurate do you think VAT is inspected?	.706
How much does the VAT Act affect the profitability of economic enterprises?	-.039
How clear and accurate do you know the information on goods and services subject to VAT?	.699
How much have you been informed concerning levying VAT on retailers and marketers?	.617
What is the impact of VAT on the prices of goods and services produced by economic enterprises?	.675
How adequate is the exemption (zero tax rate) of exported goods and services from the VAT payment?	.575
How has VAT affected your sales of goods or services?	.522
How much will the tax rebate or transfer of overpaid taxes to the next periods help suppliers of goods and services?	.440
To what extent are you satisfied with the steps and time of issuing tax cases in the VAT system?	-.073
Does the VAT information system lead to transparency in economic activities?	.541
What is the impact of VAT on the cost of goods and services produced?	.651
To what extent are VAT rates commensurate with the country's current economic status?	.277
How much has the on-time payment of VAT offered you tax incentives?	-.098
Do you think the enforcement of VAT will expand the size of economic enterprises?	-.106
What are your expectations of reducing the inspection time and the faster rebate of overpaid taxes?	.483
How much do you agree with the reduction of the general VAT rate in exchange for an increase in the tax rate of luxury and non-essential goods?	.465

Source: Research Calculations

5.2. Determining the reliability of questionnaires

Reliability means that if we re-evaluate a concept with the same measuring instrument under the same conditions, how much the results will be consistent or similar, accurate, and reliable, and to what extent does measurement enable repeatability and reproducibility? The reliability value ranges from 0 to 1. Coefficients above 0.7 indicate that the internal correlation between the items is high, and the tool is well designed. Cronbach's alpha was used to calculate the reliability of the questionnaire. According to the general rule of experts in humanities and social sciences, alpha values are divided into five categories as follows, which is a suitable reference for the analysis.

Value	Unacceptable	Poor	Uncertain	Acceptable	Good	Excellent
Result	≥ 0.5	≤ 0.5	≤ 0.6	≤ 0.7	≤ 0.8	≤ 0.9

Cronbach's alpha, which is used to measure the internal consistency of items of an index, is mainly used for questionnaires whose items or questions are usually designed based on the Likert scale and for questionnaires with multiple-choice answers. In calculating Cronbach's alpha, we need to analyze items that have homogenous and identical options. At first, 50 questionnaires were completed, and SPSS software and Cronbach's alpha were used to analyze the reliability of items.

Table 4 illustrates that the value of non-standard alpha of the desired items is 0.87, and the value of standardized alpha is 0.82. Given the importance of standardized alpha, this value has been taken into consideration, so it can be claimed that the questionnaire has good reliability, or in other words, it has good internal consistency.

Table 4: Cronbach's alpha values to measure the reliability of items

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
0.87	0.82	20

Source: Research Calculations

6. Data analysis

Some questions at the beginning of the questionnaire collected information on demographic characteristics of the participants, including gender, age, level of education, work experience, number of employees, production capacity, sales rates, etc., the results of which are as follows.

6.1. Frequency distribution of taxpayers' status

Taxpayers were classified into natural and legal groups. The number of natural taxpayers is 254 (38.7 %), and the number of legal taxpayers is 397 (60.5%). There were also five missing answers. The taxpayers' standard deviation is 0.488.

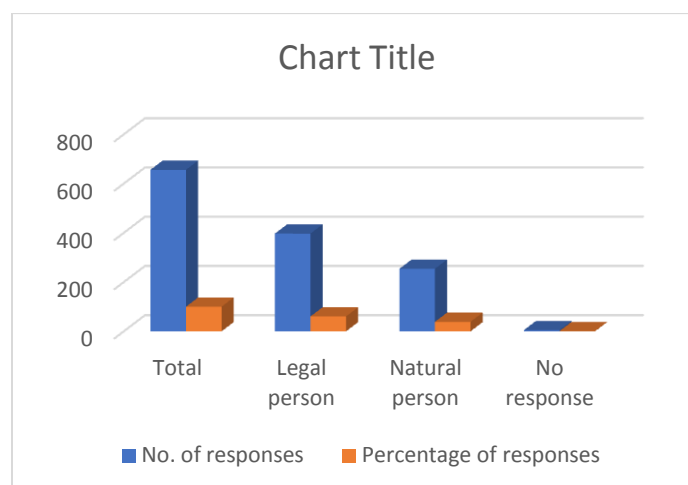


Figure 1: The respondent taxpayers' status

6.2. Frequency distribution of gender

Five hundred and fifty-six respondents (85%) were men, and 70 (10%) were women; 30 individuals did not answer the question.

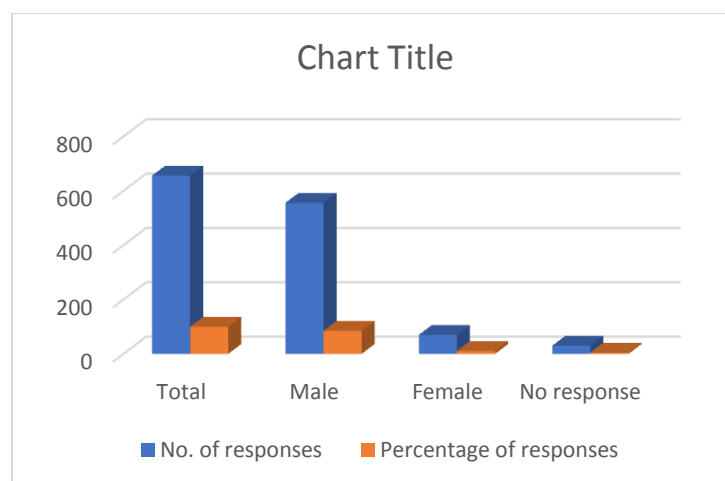


Figure 2: Gender of respondents

6.3. Frequency distribution of education level

The respondents' education level was classified into five groups; 243 respondents had a diploma degree or lower; 44 had an Associate's degree; 201 had a Bachelor's degree; 119 had a Master's degree, and five had a Ph.D. degree. The highest percentage of education (37%) was related to diplomas and lower degrees, and the lowest percentage was related to a Ph.D. degree (0.8%). A total of 44 people did not respond; the standard deviation of education level is 1.208.

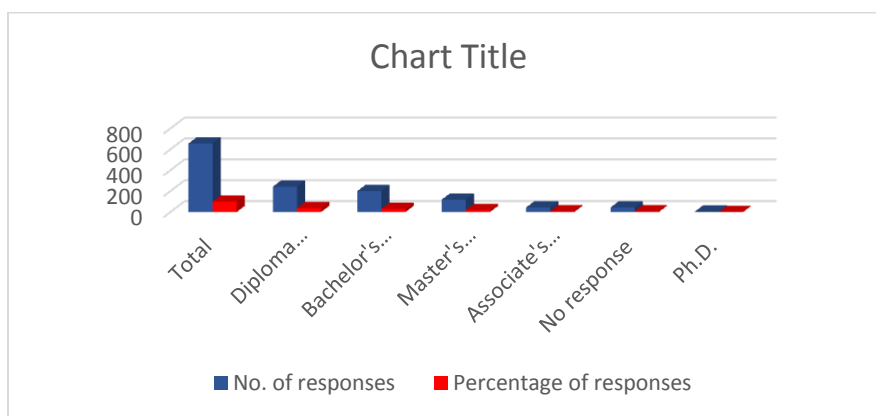


Figure 3: Education level of respondents

6.4. Frequency distribution of job title

A survey of the respondents' job titles showed that 365 respondents (55.6%) were executives or managers of institutions and economic enterprises. The lowest position was related to commercial and sales managers with three answers (0.5%).

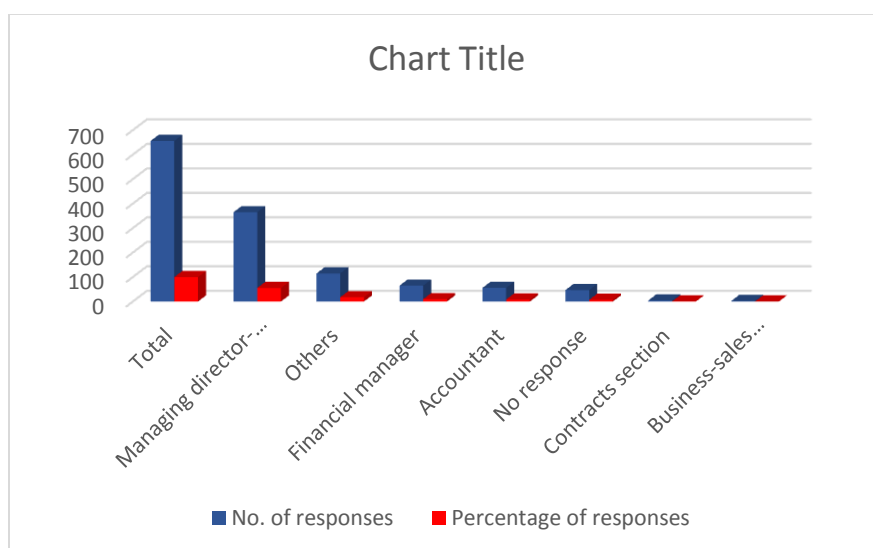


Figure 4: Job titles of respondents

6.5. Frequency distribution of work activities

The titles of the enterprises were classified into 24 different groups based on the classification of economic activities under ISIC international codes. In these groups, the contract work and service group had the highest rank (247 answers), and the production group of other means of transportation had the lowest rank (two answers).

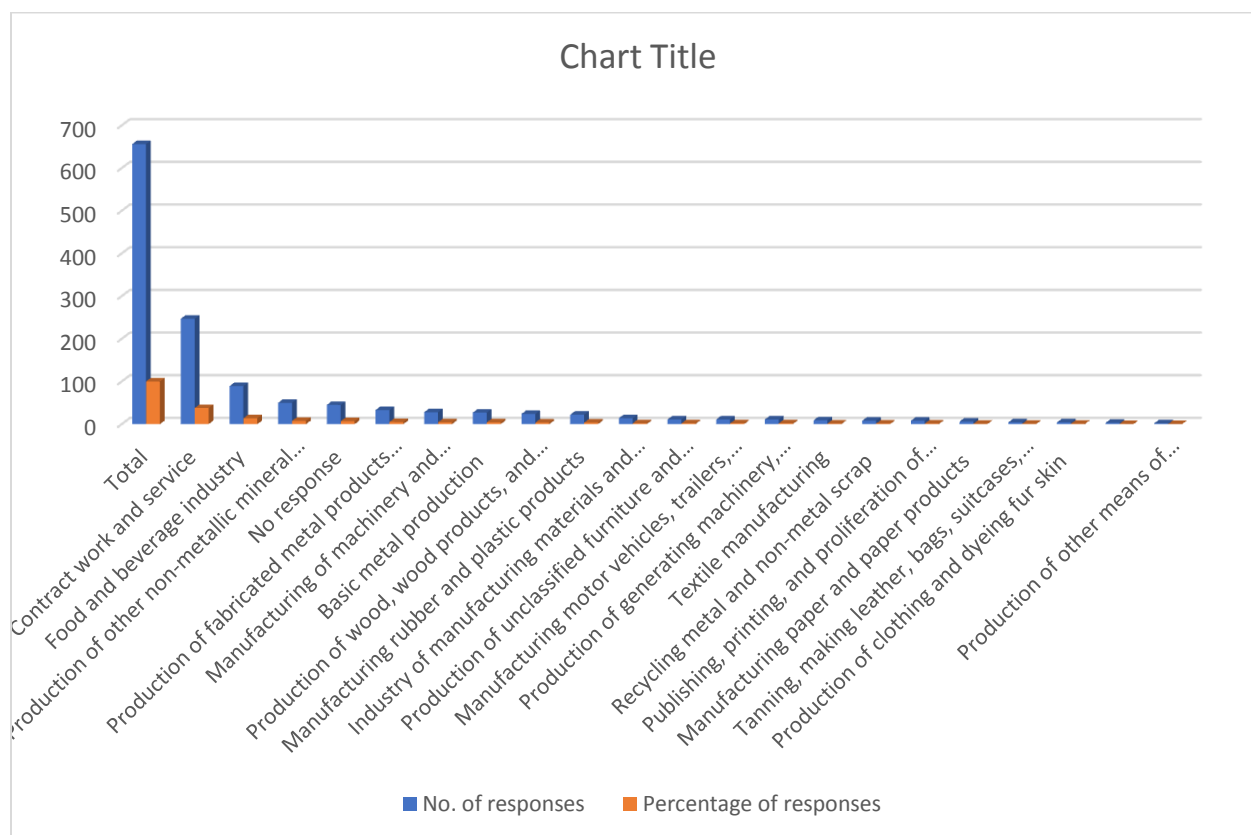


Figure 5: Titles of economic enterprises

6.6. Frequency distribution of work experience of enterprises

The work experiences of the statistical population were classified into five groups: the first group consisted of less than five years of experience (11% of enterprises); the 6-10-year group (25%), the 11-15-year group (21%); the 16-20 year group (12%), and over 21 years (19%).

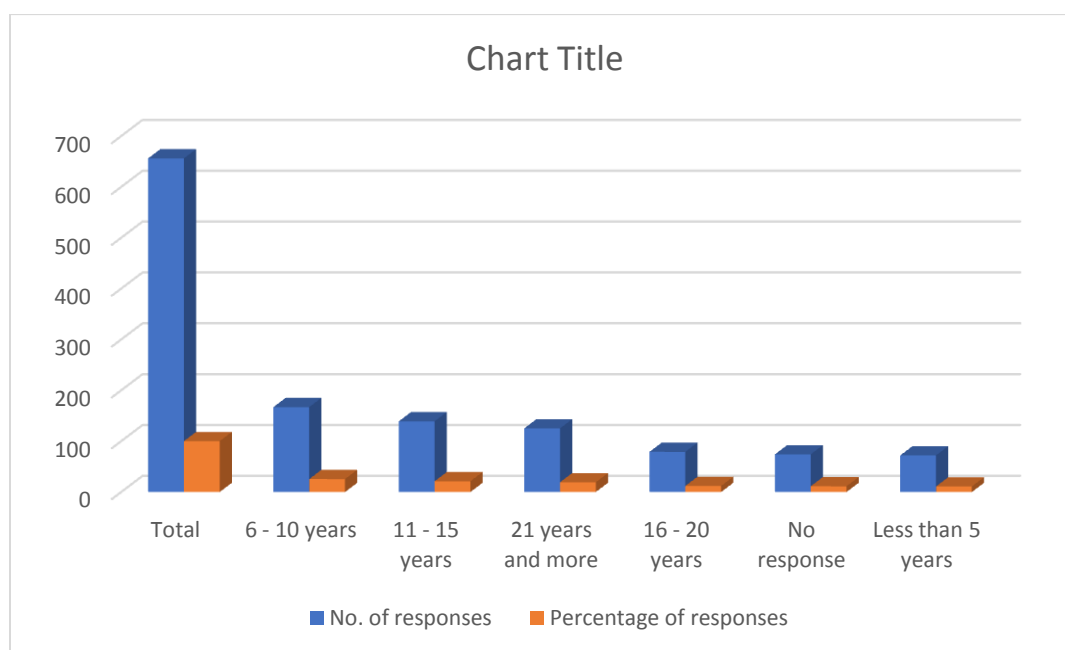


Figure 6: Work experience of economic enterprises

6.7. Frequency distribution of the number of employees

The number of employees of the surveyed enterprises was classified into four groups. The first group, up to nine employees, 344 individuals (52% of the enterprises), had the highest statistic. The second group involved 49-400 employees (27% of enterprises) and ranked second. The third group included 50-99 employees, 27 enterprises (4.4 %), and ranked third. The fourth group involved enterprises with 100 employees or more, 27 enterprises (4.1%).

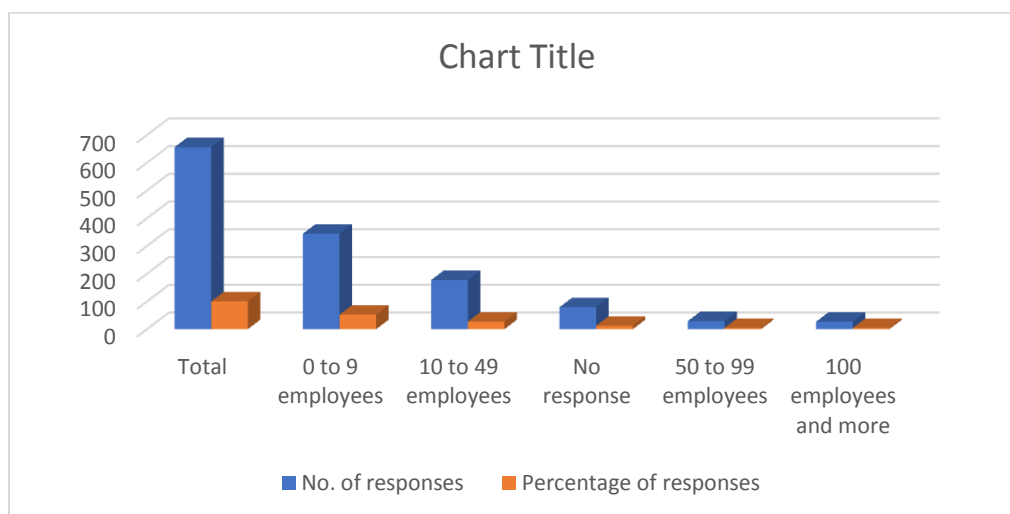


Figure 7: Number of employees in economic enterprises

6.8. Frequency distribution of annual sales

In response to the question of annual sales, 65.5% of manufacturing enterprises had annual sales of less than 10 billion Rials; 13.4% of enterprises had annual sales of 10-30 billion Rials, and 13.3% sold more than 30 billion Rials.

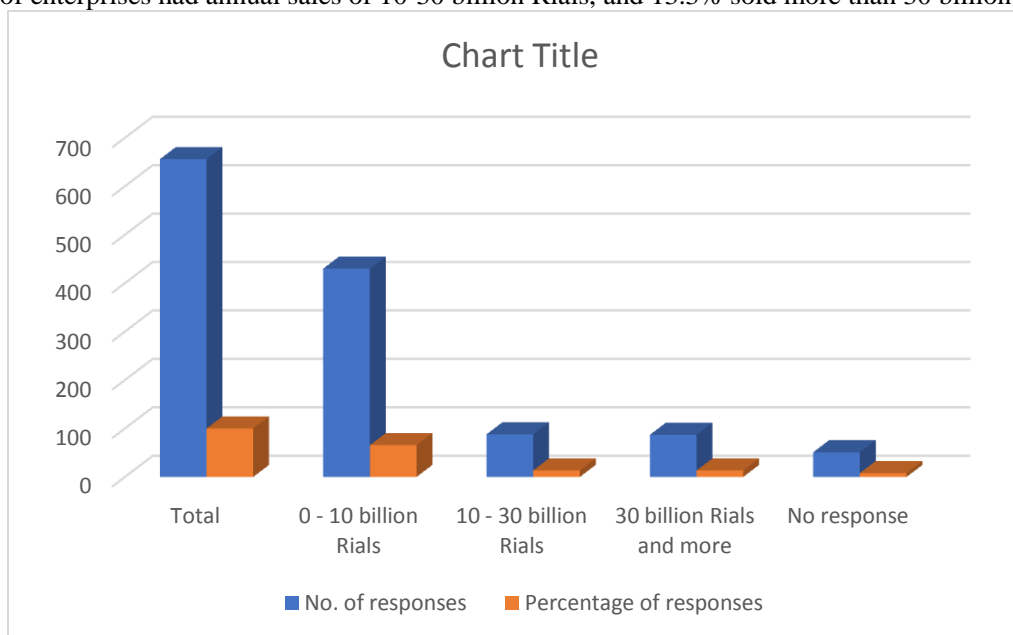


Figure 8: Annual sales

6.9. Frequency distribution of production capacity

Studying the production capacity of the surveyed enterprises revealed that 6% of the enterprises produced 30% of their capacity. In contrast, 5% stated that this capacity was equivalent to 30-50%; 4.3% of enterprises had a production capacity of 50-70%, and 13% of the enterprises had a capacity of 70% or more. The critical point is the “no response” item for this question, which comprises 71% of the statistical population.

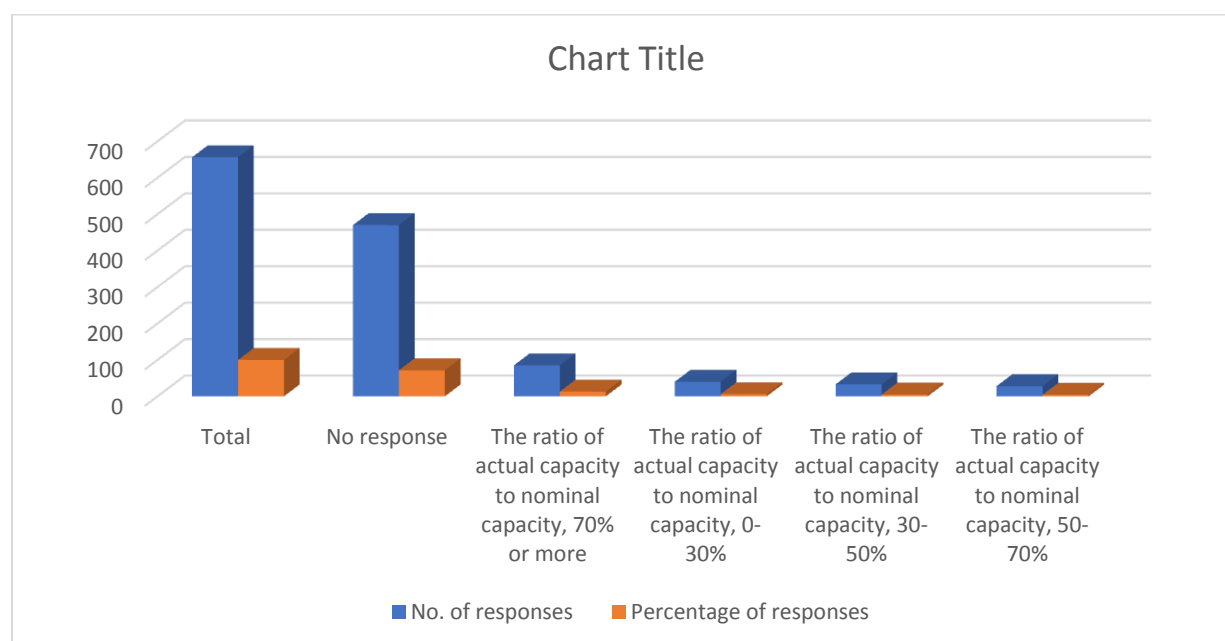


Figure 9: Production capacity of enterprises

6.10. Descriptive statistics of variables

Descriptive statistics is a set of methods used to organize, summarize, prepare a table, draw a graph, describe, and interpret data collected from a statistical sample. Therefore, descriptive statistics deals with the features and statistics related to the statistical sample of the research. These data are often displayed in the form of descriptive statistics, one-dimensional tables, graphs, central tendency indicators (mode, mean, and mean), and dispersion indicators (standard deviation).

Table 14: Descriptive statistics of the variables under study

Statistics									
Statistics	Type of taxpayer	Level of education	Job title	Gender	Activity title	Work experience	No. of employees	Annual sales amount	Production capacity
Mean	1.61	2.34	4.48	1.11	18.24	3.03	1.55	1.43	2.85
Median	2.00	3.00	5.00	1.00	23.00	3.00	1.00	1.00	3.00
Std. Deviation	.488	1.208	1.546	.315	6.846	1.334	.794	.731	1.217

7. Testing the normality of variables

7.1. Testing the normality of descriptive variables

To use a statistical technique, first, we must determine whether the collected data has a normal or non-normal distribution. If the data collected for testing the hypothesis is normal, the parametric test can be used; otherwise, the nonparametric tests can be used.

Table 16: Results of skewness and kurtosis tests to assess the normal distribution of data

Statistics										
		Type of taxpayer	Education level	Job title	Gender	Activity title	Work experience	No. of employees	Annual sales amount	Production capacity
N	Valid	651	612	609	626	611	582	577	605	186
	Missing	5	44	47	30	45	74	79	51	470
Skewness		-.451	.090	-1.299	2.469	-.784	.175	1.563	1.344	-.436

Std. Error of Skewness	.096	.099	.099	.098	.099	.101	.102	.099	.178
Kurtosis	-1.802	-1.485	.276	4.111	-.713	-1.167	1.953	.203	-1.433
Std. Error of Kurtosis	.191	.197	.198	.195	.197	.202	.203	.198	.355

Source: Research Calculations

7.2. Testing the normality of variables based on the theory

One-sample Kolmogorov-Smirnov test and Shapiro-Wilk test were used to investigate the normal distribution of data based on the theory.

7.2.1. Kolmogorov-Smirnov test

This test is used to test whether the sample has a specific distribution. This test is done by comparing the relative frequency distributions observed in the sample with the relative frequency distributions in the population. In other words, this test can examine different data distributions. The most common use of this test is to assess the normality of data distribution.

In interpreting test results, if the significance value is greater than 0.05, the observed distribution is closer to the normal theoretical distribution. However, if the significance value is less than 0.05, the observed distribution is different from the theoretical distribution (i.e., the above distribution is not a normal distribution). Therefore, to further analyze it, other nonparametric tests must be used.

Based on the results of this test, $\text{Sig} < 0.05$ means, there exists no normal distribution of data. However, this test is usually suitable for examining small sample sizes. Thus, the Shapiro-Wilk test was used for more confidence.

7.2.2. Shapiro-Wilk test

This test, like the Kolmogorov-Smirnov test, examines and tests the normal distribution of data. The results are similar to the Kolmogorov-Smirnov test, and if $\text{Sig} < 0.05$, it indicates that the existing data possess a non-normal distribution. The results of this test also show that the data is not normally distributed.

Table 17: Normal distribution of data based on Kolmogorov-Smirnov and Shapiro-Wilk tests

Tests of normality						
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
How familiar are you with the VAT system and its enforcement mechanisms?	.157	567	.000	.894	567	.000
How effective do you think the amount of tax penalty has been on the timely payment of VAT?	.215	567	.000	.892	567	.000
To what extent do you think VAT affects employment in economic enterprises?	.214	567	.000	.862	567	.000
To what extent do the incentives and exemptions in the VAT system affect employment?	.256	567	.000	.856	567	.000
How accurate do you think VAT is inspected?	.178	567	.000	.903	567	.000
How much does the VAT Act affect the profitability of economic enterprises?	.231	567	.000	.833	567	.000
How clear and accurate do you know the information on goods and services subject to VAT?	.208	567	.000	.890	567	.000
How much have you been informed concerning levying VAT on retailers and marketers?	.224	567	.000	.871	567	.000
What is the impact of VAT on the prices of goods and services produced by economic enterprises?	.189	567	.000	.890	567	.000
How adequate is the exemption (zero tax rate) of exported goods and services from the VAT payment?	.190	567	.000	.905	567	.000
How has VAT affected your sales of goods or services?	.198	567	.000	.900	567	.000
How much will the tax rebate or transfer of overpaid taxes to the next periods help suppliers of goods and services?	.174	567	.000	.913	567	.000

Tests of normality						
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
To what extent are you satisfied with the steps and time of issuing tax cases in the VAT system?	.220	567	.000	.851	567	.000
Does the VAT information system lead to transparency in economic activities?	.191	567	.000	.895	567	.000
What is the impact of VAT on the cost of goods and services produced?	.166	567	.000	.894	567	.000
To what extent are VAT rates commensurate with the country's current economic status?	.201	567	.000	.865	567	.000
How much has the on-time payment of VAT offered you tax incentives?	.246	567	.000	.826	567	.000
Do you think the enforcement of VAT will expand the size of economic enterprises?	.261	567	.000	.806	567	.000
What are your expectations of reducing the inspection time and the faster rebate of overpaid taxes?	.196	567	.000	.899	567	.000
How much do you agree with the reduction of the general VAT rate in exchange for an increase in the tax rate of luxury and non-essential goods?	.216	567	.000	.857	567	.000

Source: Research Calculations

8. Hypothesis analysis

Before discussing the hypotheses tests, it is necessary to know that due to the non-normal distribution of data, statistical tests should be selected under the data conditions. Nonparametric statistical tests should be used when the data are not normally distributed. In other words, nonparametric tests for one group include tests that we use to compare the distribution observed in a population with its theoretical distribution. As the scale of the variables under study is ordinal and single-grouped, a binominal test is suitable for data analysis.

Binominal test

To test the hypotheses, the variables were examined based on the binominal test (Table 18). The primary hypothesis and secondary hypotheses are as follows:

- *Primary hypothesis*
VAT has a positive effect on the performance of economic enterprises.
- *Secondary hypotheses*
Secondary hypothesis 1: VAT has a positive effect on the employment of economic enterprises.
Secondary hypothesis 2: VAT has a positive effect on the profitability of economic enterprises.
Secondary hypothesis 3: VAT has a positive effect on the production of economic enterprises.
Secondary hypothesis 4: VAT has a positive effect on the size of economic enterprises.

Assumption of binominal test

Binominal distribution: The variable should be binominal so that its two values for all respondents are independently and mutually inclusive and exclusive.

Data distribution: Like nonparametric tests, it does not require normal distribution.

Random sampling: In the binominal test, like all significance tests, it is assumed that the samples are selected randomly.

Since the binomial test compares the observed ratio with a hypothetical ratio, it is necessary to know this assumed ratio. The assumed ratio is the same ratio of respondents. According to the research hypothesis, it is assumed that this ratio should exist among the respondents to confirm the hypothesis, and if such a ratio does not exist, the hypothesis is rejected. Based on the experiences and recommendations of statistical science experts, this statistic is considered as 0.6.

8.1. The primary hypothesis test

The results of the primary hypothesis test using the binominal test method showed that the observed ratio (0.8) was higher than the test statistic (0.6) (i.e., VAT did not have a positive effect on the performance of the economic enterprises). Since $\text{Sig} < 0.05$, the negative impact is also significant. Therefore, the primary hypothesis is rejected.

8.2. Testing secondary hypothesis 1

Assessing the first hypothesis test based on the binomial test revealed that the test ratio (0.6) was different from the observed ratio (0.8), and the test ratio was smaller than the observed ratio. It means that VAT did not have a positive effect on the profitability of economic enterprises, and given that $\text{Sig} < 0.05$, the negative impact is significant.

8.3. Testing secondary hypothesis 2

In the second hypothesis, as the observed ratio was higher than the test ratio and 80% of the participants stated that VAT has no positive effect on the employment of economic enterprises, the second hypothesis is rejected.

8.4. Testing secondary hypothesis 3

In the third hypothesis, the test statistic is 0.6, and the observation ratio is 0.7, which is higher than the test statistic. Therefore, VAT has no positive effect on the production of economic enterprises. Since $\text{Sig} < 0.05$, the effect is significant, and the third hypothesis is rejected.

8.5. Testing secondary hypothesis 4

The fourth hypothesis states that VAT has a positive effect on the size of economic enterprises. In this hypothesis, the observed ratio is 0.8 and is higher than the test statistic, hence the positive effect of VAT on the size of economic enterprises is rejected, and because $\text{Sig} < 0.05$, the negative impact is significant. Therefore, the fourth hypothesis is also rejected.

Table 18: The results of the binomial test on the hypotheses

Binomial test						
		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (1-tailed)
Secondary hypothesis 1	Group 1	≤ 3	497	0.8	0.6	.000a
	Group 2	> 3	142	0.2		
	Total		639	1		
Secondary hypothesis 2	Group 1	≤ 3	475	0.8	0.6	.000a
	Group 2	> 3	144	0.2		
	Total		619	1		
Secondary hypothesis 3		≤ 3	448	0.7	0.6	.000a
		> 3	173	0.3		
	Group 1		621	1		
Secondary hypothesis 4	Group 2	≤ 3	536	0.8	0.6	.000a
	Group 2	> 3	96	0.2		
	Total		632	1		
Primary hypothesis	Group 1	≤ 3	466	0.8	0.6	.000a
	Group 2	> 3	101	0.2		
	Total		567	1		
a. Based on Z approximation						

Source: Research Calculations

9. Conclusion and recommendations

Considering the enforcement of the VAT Act in Iran since 2008, this study evaluated the impact of VAT on production, profitability, employment, and size of economic enterprises. The study was conducted using questionnaires distributed among manufacturing and service enterprises in the Khorasan Razavi, North, and South Khorasan provinces in the form of five hypotheses. The hypothesis test results, using the binomial test method and SPSS software, indicated that in all hypotheses, 80% of respondents believed that VAT from the time of enforcement had a negative impact on production, profitability, size, employment, and consequently the performance of economic enterprises. As $\text{Sig} < 0.05$, the negative impact is significant. Therefore, the hypotheses were rejected.

Taking into account the research results, and the negative impact of VAT on the performance of economic enterprises, the suggestions of economic players in the questionnaire were examined. The results are presented as proposed policies for the amendments of the VAT Act:

- Increasing the VAT rate for luxury and non-essential goods in exchange for decreasing tax rates for other goods and services
- Reducing the inspection time of VAT cases and not linking them to income tax cases
- Integration and replacement of VAT by income tax
- Considering the validity of purchasing raw materials regardless of the case of previous individuals in the chain
- Reducing tax penalties in the VAT Act
- VAT rebate in tax exemption sections with tax return
- Reducing the income tax rates
- Obtaining VAT from the consumer, not the producer
- Improving taxation and statistical infrastructures

References

- Ansari, A., & Abbasi, A. (2012). The impact of VAT on profitability, capital, and financial resources of companies listed in Tehran Stock Exchange. *Journal of Accounting and Auditing Studies*, 4, 26-49.
- Pasha Sharifi, H., & Sharifi, N. (2011). *Research methods in behavioral sciences* (1st ed.). Tehran: Sokhan Publications.
- Rajab Beigi, R. B., & Mozaffari Panah, H. (2013). Evaluation of the effect of tax on profitability indicators in companies listed on the Tehran Stock Exchange. Paper presented at National Conference on Accounting and Management, 41-59.
- Faridzad, A., Parvin, S., & Banuyi, A. A. (2011). Value effects of VAT using the input-output technique (Case study of Iran). *Iranian Economic Research Quarterly*, 16(47), 105-127.
- Gholami, E. (2014). Study of the VAT system in Iran and selected countries. *Quarterly Journal of Financial and Economic Policies*, 2(5), 5-22.
- Khaki, G. (2012). *Research methodology with the thesis writing approach*. Tehran: Foujan Publications.
- Sakaran, O. (2012). *Research Methods in Management*. (M. Saebi, & M. Shirazi, Trans.). Tehran: Presidential Public Administration Publications.
- Saeedi, P., & Nehtani, H. A. (2009). Evaluation and comparison of VAT replacement by income tax of non-manufacturing companies. *Specialized Quarterly of Tax*, 5, 115-135.
- Tayeb Nia, A., Rafiei, A. R., Yazdanpanah, M. (2005). Study of the possible effects of VAT on inequality in Iran. *Journal of Economic Research*, 68, 305-336.
- Samadian, H. (2013). Study of the effect of VAT on economic growth in developed and developing countries (Master's thesis). Islamic Azad University of Tehran Center, Tehran.
- Manouchehri, S., Imani, Z., Poosaneh, S., Nazeri, N. (2011). Comparative study of cash turnover ratios of companies listed in the Stock Exchange before and after the VAT law enforcement. *Quarterly Journal of Experimental Studies of Financial Accounting*, 35, 1-19.
- Nematzadeh, M., & Memarnejad, A. (2016). An analysis of the effect of VAT on employment: an inter-country study". *Quarterly Journal of Research and Economic Policy*, 24 (77), 211-232.
- VAT law approved in 2008.
- Arene C. J. & S. O. N. Domadu (1997), "Impact of Value-Added Tax on the Capital Structure and Profitability of Premier Breweries Plc, Nigeria," *Post- Graduate Research Fellow in the Department of Agriculture Economics, University Nigeria, Nsukka, Nigeria*.
- Arvind, Ashta (2007), Strategic Aspects of Value Added Tax (VAT,)," Burgundy School of Business (Groupe ESC Dijon-Bourgogne).
- Adereti, S.A.; Sanni, M. R.; Adesina, J. A. (2011). "Value Added Tax and Economic Growth of Nigeria." *European Journal of Humanities and Social Science*, vol.10 Pp. 456-471.
- Arisoy I; Unlikaplan I (2010). "Tax Composition and Growth in Turkey: An Empirical Analysis." *International Research Journal of Finance and Economics*, vol.56, pp.50-61
- Lora Eduardo & Fajardo Jojana (2012). "Employment and Taxes in Latin America: An Empirical Study of the Effects of Payroll, Corporate Income, and Value Added Taxes on Labor Outcomes." *IDB Working Paper*. No13. IDB-WP-334.

- Segun Matthew Afolayan. Okoli, M.N. (2015). "The Impact of Value Added Tax on Nigerian Economic Growth (1994-2012)": An investigation. *European Journal of Business and Management*. Vol.7, No.9, pp.226-236.
- Nie, Huihua. Fang, Mingyue. Li, Tao (2010). "Chinas Value Added Tax Reform, Firm Behavior and Performance" www.ssrn.com.