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Research Article

AN INVESTIGATION INTO THE EFFECTS OF REPLACEMENT OF VALUE ADDED TAX (VAT) RATHER THAN INCOME TAX ON MANUFACTURING FIRMS ON THE AMOUNT OF TAX REVENUES (CASE STUDY: KERMANSHAH PROVINCE)

*** Bakhtiar Asgharzadeh[1] and Arash Karamveisi[2]**
[1]Masters of Accounting, Department of Accounting, Kermanshah Science and Research Branch, Islamic Azad University, Kermanshah, Iran
[2]Masters of Financial Management, Department of Accounting, Kermanshah Science and Research Branch, Islamic Azad University, Kermanshah, Iran
**Author for Correspondence*

ABSTRACT
This study was an attempt to review and analyze the substitution of Value Added Tax instead of income tax effect of manufacturing companies in Kermanshah. So, first final income tax of samples companies, including 67 companies has been extracted from tax records, then the added value of each company was estimated by cumulative method and rates of 4 different scenarios 1/5, 3, 7 and 10 percent. Analysis of the data indicates that the data of the study is abnormal; so to test the research hypotheses, non-parametric Wilcoxon test and Friedman test was used. Test results show that replacing lower rate Value Added Tax of 1/5 and 3 percent instead of income tax of manufacturing firms reduces the tax revenues. In addition, replacing Value Added Tax with rates of 7 and 10 percent, rather than the corporate income tax, will increase tax revenues of the province.
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1. INTRODUCTION

The main goals of the estate economic activities include goals such as optimum resource allocation and equitable distribution of income, economic growth, rise in employment, economic stability, maintain the general level of prices, the recovery of international trade and balance of payments. Governments have to incur very heavy cost to carry out these tasks. To finance these expenditures, it is necessary to prepare a variety of income sources.

Overall, state income tax is divided into two groups of tax and non-tax incomes. The role of tax revenue in many countries is more important than other sources of income. In other words, comparison of this source with other sources shows that the greater the share of taxes in the government financing, the adverse effects of economic will be less. That's why taxes in developed countries, unlike developing countries, play an important role in government financing and almost the bulk of government spending is financed in this way.

Until 2001, the revenues from oil and gas sales has been of the items forming the government revenues on which basis, a new classification has been created in the budget law as the sale of capital assets. Significant fluctuation of oil prices in the world market causes instability in entire state revenues in the economy of Iran in the past decades. On the other hand, due to the low share of tax revenues in providing government spending and insufficient non-tax revenue to cover expenses, the state faces a deficit. Existence of the deficit, debt from the central bank and injection of oil revenues into the economy would trigger inflation (State Tax Organization, No. 12).

Therefore, the government should seek ways to offset the deficit, so cover the bulk of the cost of its credit (current). It can be estimated by alternating VAT, instead of corporate income tax.

In the twenty-year perspective horizon of Iran in 2025, one of the requirements is to convert oil and gas revenues into productive assets to stabilize and allocate and optimal utilization of resources (article 42 of

the document). Following the cut of reliance on current cost of oil revenues, the government has been obliged to finance the costs of tax revenues (Article 51) and to create financial and fund discipline and balance between sources and uses by the establishment of the new tax system, such as "VAT" (Article 50) (State Tax Organization, No. 16).

VAT, is a multistep tax that is taken in various stages of the chain of importing, manufacturing and distribution based on a percentage of the value of goods sold or services provided at each step, but the tax payments at each stage of the chain of imports, production and distribution is transferred to the next step to ultimately be paid by the final consumer. VAT, is a tax that all suppliers of goods and services (Taxpayer of the tax system) in addition to the price of goods or services, should receive as a percentage of the sales price of goods or services at the time of from buyers and periodically (quarterly) transfer it to the State Tax Organization. Any VAT paid at the time of purchase by the taxpayer, including importers, manufacturers, distributors and exporters (that is considered as an agent to collect the tax system and not a tax payer), their demand of the government will be calculated and seasonally are settled with the tax affairs organization. The liquidation of the taxpayer to pay tax on the purchase is either taken place by means of deduction from the claim of the purchaser or by taking back by the State Tax affairs organization (Ziaee Bigdelli, Boldaji Tahmasebi, 2004).

The added value of a firm equals the difference between the selling agent and the cost of purchasing goods and services purchased from other firms; in other words, value added is a value that producers adds by raw materials and other inputs purchased. From another viewpoint, the sum of value added of all economic agencies, in fact is the national production; because all the transaction minus all intermediate transactions (buying of agencies from other agencies) is equal to the sum of wages, interest, rent and other payments to production factors at the national and it is equal to national production. Hence; value added can be calculated from the following equation (Hesami Azizi, 2002):

Corporate Profits + Salary costs + Depreciation expense + Interest expense + Rental cost = Value Added

Survey conducted and experience to implement this kind of tax in different countries shows that its implementation now, to dispel some of the current problems of the tax system such as: tax revenue, identification of Taxpayer, dispel of lack of information about them, reduction of flashback in tax payment, reduction of tax evasion, etc. can be helpful. Value-added tax currently is running in more than 135 countries worldwide. Due to the rapid growth of concordance of the tax features with countries development purposes, it will be remembered as a modern tax (Keen, 2005, p 78).

We now want to answer the fundamental question: How can we increase the tax revenues of Kermanshah province? In other words, can value added tax be a good alternative for tax of manufacturing firms and increase the tax revenues to the province?

2. Theoretical Principles of Research

Significant expansion and development of VAT tax is perhaps considered as the most important tax development in the late twentieth century. Forty years ago, i.e. the early 1970s, the tax was not very popular. But in recent years, the main focus of tax reform program, in almost all countries is on the VAT.

The tax and the property of high income generating caused in many cases, to be called the machine of taking government revenue. Creating new stable and flexible revenue to meet the ever-increasing costs of administration include the main reasons of selection of the VAT in some countries.

Although, VAT as any other tax method, has its own problems, but it seems that by providing some actions in order to resolve these problems, disorders of VAT is negligible compared with other taxes.

In contrast, these kinds of taxes have effects on government budgets, investment, economic growth and so on that we are going to briefly describe them.

The effect of VAT on the state budget

It is said that VAT, or basically any other tax increase the government revenues, so it can expand the budget and government spending. Therefore, since the expansion of government spending could potentially be inflationary, establishing the tax system can increase the general level of prices.

The effect of VAT on investment

We know that under the condition that the burden of dependent is high in society, the only way to encourage savings and as a result investment is reducing the tax burden, especially for low-income people. Hence, it is argued that the effect of the VAT has lower rates. Although the value added obtained from the use of the asset will tax the investment, but in contrast to the progressive rates of income tax, the tax burden is less, so it can be encouraged to invest.

The effect of VAT on consumption and savings

Evaluation of the impact of VAT on savings level for households and firms as well as the level of savings in the community requires a detailed understanding of patterns of consumption and saving of people and also saving incentives of firms. In other words, only by understanding the behavioral relationships that govern individual choices and the also factors affecting the firm allocating resources, we can review the influence of value-added tax or principally any tax on consumption and saving.

The effect of VAT on financial stability

In the economic literature, always the benefits of the automatic stabilizers in the tax system are remembered. Automatic stabilizers are those tax variables that have no internal breaks and based on the economic fluctuations and automatically change and reduce independent multiplier spending; so it can provide the causes of reduction of a range of economic decline in the face unexpected changes in GDP components. Among these factors, we can note the rate of income tax on progressive tax system which reduces the amplitude of the economic fluctuations and in recession and boom periods reduces the deviation from the balanced situation. Now, if the tax system is replaced by VAT system in which tax rates have no response to economic conditions and cycles of boom and recession, the role of automatic stabilizers in economy dropped, practically the possibility to extend the range of economic fluctuations will be provided; Thus, applying the tax system, particularly in communities that are suffering from economic instability in their economic process must be done in great care (Ziaee Bigdelli, Tahmasebi Boldaji, 2004, p 83).

The effect of VAT on tax revenues

The main reason to note the VAT is the tax potential in reduction of budget deficit of government and its huge income potential. VAT expands the tax base by transferring tax base from income to consumption. Due to the breadth of products and services that are exchanged in the economy, the tax base of VAT in relation to other taxes has a special extension. The breadth of the tax base in VAT makes it possible to achieve the desired tax income of government by applying lower rates. Thus, more tax revenues will be created with minimum loss of production and investment incentives (Tahmasebi Boldaji et al., 2004, p 110).

On the other hand, putting a tax base based on consumption helps increase the stability of tax revenue. Consumption as a component of GDP suffers from the lowest fluctuations; so applying value added tax of consumption provides a stable income for government. Also the implementation of VAT on the current basis makes a small change in the tax rate immediately impact on the revenues received by the government. So, this tax is a flexible financial instrument that the statesmen can make use of it easily when implementing financial policies.

The effect of VAT on foreign trade

Consumption type VAT, which runs on the destination principle, because it is based on domestic consumption, implies that no tax is paid for export, because the exported products are consumed overseas (Jencks and Coe, 2000). Thus, foreign tourists who buy domestic products and exit from countries and firms that are active in exporting goods and services, providing all the documents can request total amount of taxes paid in the prior stages and all tax paid be returned to them. Doing so, the exported good price for the seller will be less than the domestic price and the price difference is the right tool for stimulating exports. By the same reasoning, it can be stated that because importation is consumed within the country, so it is subject to the tax.

Impact of VAT on price levels

Generally, the tax is considered a restrictive policy which effect appears in terms of reducing consumption and aggregating total demand. Tax increase moves the aggregate demand curve downward. Reduction of aggregate demand also lowers the level of production and prices. Thus, in the macroeconomic framework, tax reduces the price level.

The effect of VAT on economic growth

Generally, in a simple macroeconomic model, the impact of taxes on economic growth can be observed. However, the VAT property for economic growth is relative (Pajouyan, 2001), that is, collecting tax revenue by the VAT, in contrast to other types of taxes will have positive effects on economic growth. Giving tax concessions on capital goods in the VAT system, assuming constant production can encourage firms to more investment. In addition, VAT can exceed economic growth by the impact on the supply of labor. If VAT tax can offset the negative impact of tax on social assurance, reducing labor supply will be prevented and labor production factors will be considered again during production, thus, the rate of production and economic growth will increase.

Features and Benefits of VAT

1. VAT by transferring tax base from income to consumption increased the investment incentives, provides necessary resources to expand the investment through increase in the possibility of savings and prevents transfer of capital from productive parts to services;
2. With the implementation of this kind of tax, disruption in production and investment decisions are minimized, tax revenues due to the broadness of the base of tax increases;
3. In VAT, with less economic side effects, and yet the effects of high income because of the broadness of tax base, it could help the government in implementing its financial policies;
4. By implementation of the tax, due to its low rate compared with other taxes with limited base, tax evasion incentive is reduced;
5. VAT, is superior in position in terms of taxes assessment dimensions (efficiency and equity of tax), due to lack of changes in relative prices, compared with other taxes;
6. This tax has not cumulative feature, and the incidence of multistep double taxation does not pose in it, because the VAT paid on the purchase to production factors will be returned as tax credits to the manufacturer or dealer;
7. This kind of tax, considering the economic situation of country can be flexible. During the economic boom, by increasing productivity level and value added, the amount received from the source increases. On the other hand, in times of recession, by reducing the level of production and value added of economic institution, the receiving level of VAT will be reduced and as a result, tax burden increasing pressure on different classes of the society at the time of recession will be reduced;

8. Inflation effects of VAT compared to other indirect taxes is less because in this kind of tax, the money returned to intermediate purchasers and raw materials of firms are discussed and an effective tax rate compared with the stated rate will be lower.
9. Because VAT is applied as a percentage of sales tax (tax is subject to goods prices, not its quantity), will attract part of the price increase resulting from other economic policies;
10. Applying VAT help to improve the situation of the balance of foreign trade and the relative increase in exports; because in this kind of tax, export exempt from paying tax and goods imported are taxable. As a result, the potential of export will increase due to the low level of export prices by exchange rate (price stabilization) and will follow foreign trade situation improvement;
11. Because in this tax, the taxpayers are obliged to provide a tax invoice or bill for the use of tax rate; as a result, a comprehensive information system creates to deal with ongoing economic crashes and also all transfers made. This information system can be the basis for other taxes, such as taxes on earnings or jobs profit.

Disadvantages of VAT

1. Because the tax is calculated based on the invoice, tax evasion may occur due to the collusion of buyers and sellers for insertion of less sum or other methods of fraud and abuse;
2. According to some of the scholars of economics, the tax has a descending effect, because VAT is a consumption tax and, as usual, it is applied with non-exponential rate on taxable goods. As a result, relatively low-income classes incur greater tax pressure, which this case undermines the social justice of tax. Studies show that by exemption of essential and basic goods of including in VAT, this problem would be solved;
3. Some economic analysts claim the because VAT eventually is transferred to the consumer, it increases the general level of prices, and cause inflation;
4. Since this tax is effective on prices, household spending is increasing. Thus, by removing indirect taxes and duties towards the implementation of the VAT, the expansionary effect of the tax on the cost of living will be lower.

3. Research Background

A. Studies conducted in Iran

Sheykholeslami in 2006 reviewed the VAT system, as one of the solutions in increasing tax revenue. He also while applying a system to control and ease in receiving tax using the experience gained in other countries, studied that the VAT system has been implemented there.

He concluded that, on the one hand, VAT can be effective due to the advantages such as increasing government tax revenues and supply and equipment of state funds by increasing tax revenue, shortening intervals of receiving tax, making taxpayers obliged to careful maintenance of transaction accounts, self-control privilege, the possibility of more identification and the income of people employed in various sectors of the economy and government more supervision on economy process. On the other hand, because of some possible disadvantages about the tax burden onto the final consumer, price increases and lack of social justice, it is stated that the implementation or non-implementation of VAT system in Iran need to be more investigated. (Sheykholeslami, 1996)

Jafari Samimi and Saleh Nejad in 1998 investigated the replacement of VAT for corporate tax and its impact on state budget in Iran. They used the historical data of 59 firms of listed companies in Tehran Stock Exchange cross-sectional for the period 1994 to 1996. Their investigate patterns has been estimated using OLS method with the help of TSP7. Results of estimating different models show that the company's current tax value is not changed to fit its VAT. Replacing VAT instead of corporate income tax increase the income tax substantially. Thus, substitution of VAT for corporate tax has been proposed. (Jafari Samimi and Salehnejad, 1998)

Also another study entitled "the plan of substation of VAT for corporate tax and its impact on state tax revenues in Mazandaran province" made by Jafari Samimi with the collaboration of the University of Mazandaran and the Management and Planning organization. The purpose of this study was to investigate the effects of income resulting from VAT replacing for corporate tax in Mazandaran province. Also, using data from 85 companies and business units in the province in the years 1996-1998 and estimation of various econometric models to test the hypothesis of the current VAT mismatch of companies, optimal tax rates in the various scenarios in 1998 was also estimated.

The main hypothesis test results indicate that replacing the VAT for the current companies' tax can increase government tax revenues in the province. In addition, the optimal rate of VAT given the purpose of financing two-thirds of government current spending in Mazandaran province in this research is suggested about 16% which is compatible with the standard rates in the countries which between 10% to 20% in recent years.

He has also conducted a research project entitled "providing Accounting System of VAT and its implementation for corporate tax and business owners in Mazandaran province" in July 2005 and has concluded that the substitution of VAT at the rate of 7% of bill VAT, instead of the current corporations taxes reduce the government tax revenue. As a result, the property of generating revenue of VAT at the low rate of 7% has been questioned.

In the end, he suggested that given that the proposed rates 7% VAT cannot make tax revenue, more than current income for large economic units and enterprises, so applying the rate of 10% are proposed for corporates VAT that most countries had use it at the introduction of VAT.

B. Foreign Similar Researches

1. Committee of turnover tax on goods in the UK (1964): The first review about replacing VAT for corporate profits tax had taken place by the Committee of tax on the circulation of goods in the UK in 1964. In the review of committee, replacing the VAT with the tax on corporate profits was rejected;
2. Study of Saravan in India (1970): "Saravan" studied replacing VAT for taxes on corporate profits in India. He, on the basis of calculations conducted in 1969-1970, showed that the rate of VAT will be 13% that compared with 46% tax rate on corporate profits reduces tax evasion. He also stressed that in the replacement of the VAT system, instead of tax system on corporate profits, additional administrative costs will not exist because the number of companies that are registered as taxpayers, remain stable;
3. Research of Alan Tait (1986): In a study that "Alan Tait" conducted in 1986, about the replacement of VAT in the member countries of the Organization for Economic Cooperation and Development has generally come to the conclusion that the bulk of the interest of countries to use VAT was to replace other taxes, due to their dissent towards relying on and much trust to direct taxes. In this study, the statistics of tax revenues for the years 1965-1985 in economic and development cooperation member states are used. Studies show that the share of indirect taxes of tax revenues of all states has been declined in 1975 compared to 1965. For some countries the decline was much higher (42% in Spain, 35% in Japan and 30% in Belgium). In order to compensate for a decline in the importance of indirect taxes, increase in direct taxes and transfer of a part of the burden of VAT, a large number of UN member states have used the VAT;
4. Research of Ballard, Scholes and Shoven in the United States (1987): "Ballard", "Scholes" and "Shoven" in 1987, using a general equilibrium model concluded that establishing a uniform rate of VAT in the United States will improve economic efficiency and value-added taxes has the lowest social cost among the taxes;
5. Research of Alan Tait about 44 countries (1988): Alan Tait in a study in the field of VAT and income tax rates in 44 countries reached important conclusions (including 37 countries that have applied VAT, in addition to 7 countries which were accepting to the January 1st 1988). 15

countries had a single rate (regardless of the zero rates which almost all countries considered it for export). The highest single rate was in Denmark (22%) and lowest in Japan (3%) respectively. Some countries switched from a single rate of VAT, to two-tiered or multi-tiered rate, in a multi-tiered system of value added tax, the highest rate has been in Senegal (50%) and the lowest in Belgium (1%).

Alan Tait in respond to this question that if VAT increases the income tax or compensates revenue lost due to the reduction or elimination of other taxes, come to the conclusion that in most of the cases (21 out of 36 countries) replacement of VAT has an equal output to the alternative tax. In 13 countries, it increased revenues and reduced earnings in two countries.

4. The hypothesis of the study

The main hypothesis of the present study is as follows: "Replacement of VAT instead of income tax of manufacturing companies in Kermanshah Province will increase tax revenues in the province."
According to the following four scenarios to test the above hypothesis, sub-hypotheses are used:

Scenarios for Calculating VAT

1. Scenario I: In the first scenario of the study, VAT rates will be calculated using the approved rate of VAT (1.5 percent);
2. Scenario II: Based on the Law on VAT, in which a total of 3 percent, including 1.5% tax and 1.5% as the effects of the consumer, thus, in the second scenario of this study, the rate of 3 percent has been used to calculate the VAT;
3. Scenario III: In the third scenario, VAT will be calculated and checked based on the bill rate VAT (7%);
4. Scenario IV: Based on experience of most countries using the system of VAT, the minimum basic rate for the introduction and application of the tax is the rate of 10 percent. Also, in the final recommendations of the comprehensive and complete research project, carried out by Ahmad Jafari Samimi, its stated: "Given the results of this study have shown that applying a lower rate of 7% on VAT, about the large unit of taxation and companies reduces tax revenues; therefore, it is recommended that like the experience of most of countries, the minimum basic rate for introduction of VAT is 10 percent." In the fourth scenario in the present study, we will calculate and review the VAT, at the rate of 10 percent.

Alternative Hypothesis

1. Replacement of VAT at a legal rate of (5/1 percent) instead of income tax on manufacturing companies in Kermanshah Province will increase tax revenues in the province;
2. Replacement of VAT at a legal rate of total taxes and duties (3 percent) instead of income taxes in manufacturing companies in Kermanshah Province will increase tax revenues the province;
3. Replacement of VAT at a bill rate (7%) rather than income tax of manufacturing companies in Kermanshah Province will help increase tax revenues the province;
4. Replacement of VAT at a standard rate of (10%) instead of income taxes on manufacturing companies in Kermanshah Province will increase tax revenues in the province.

5. Research Variables

A. Independent variables: "VAT" as an independent variable in this study that is calculated in four ply rate of 1.5, 3, 7 and 10%;
B. Dependent variable: "Tax revenues in Kermanshah province" in this study is considered as the dependent variable.

6. METHODOLOGY

After determining the amount of income tax paid by sample companies, the added value of each company has been calculated using cumulative model and then VAT of any company in each year will be calculated based on four scenarios. Then, we examine the research hypothesis using the statistical software of SPSS and appropriate statistical tests.

7. Statistical Population, Sample Size and Scope of the Research

The research sample includes all manufacturing firms active, profitable and included in tax of Kermanshah province which are studied in a 5 year period, that is, 2005- 2009. The number of population of the study was consisted of 627 companies (Statistics department of Tax Administration Kermanshah Province), which a sample consisted of 67 companies were randomly selected.

8. Methods of data analysis

To investigate the effect of substituting the VAT instead of income tax of manufacturing companies in Kermanshah, first the final tax rate of the sample companies is extracted from tax records, then using reports of tax authorities and issued definitive and detection bonds, the rate of value added of corporate in each year of five year period from 2005 – 2009 is calculated based on cumulative method.

After determining the value added of each firm in each year, we calculate the VAT of each company per year based on the four scenario rates.

Data of 67 samples companies are collected according to the following table.

Table 1: Data collected from the sample companies

Row	Performance year	Definite tax	Value added in manufacturing companies	Vat-1/5%	Vat-3%	Vat-7%	Vat-10%
Company 1	2005						
	2006						
	2007						
	2008						
	2009						
	Average						

Finally, using SPSS and through appropriate statistical techniques (Wilcoxon non-parametric and Friedman tests) we test the hypotheses at a confidence level of %95.

9. Testing Hypotheses

First Hypothesis

H_0: Replacement of VAT at a rate of 1.5 percent rather than tax on income of manufacturing companies in Kermanshah province will not increase tax revenues in the province.

H_1: Replacement of VAT at a rate of 1.5 percent rather than tax on income of manufacturing companies in Kermanshah Province will increase tax revenues in the province.

First Hypothesis Test: Wilcoxon test and calculation of Mean rank for definite and tax 1.5% of value added in manufacturing companies.

Table 2: Descriptive statistics

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25^{th}	50^{th} Median	75^{th}
Definite tax	67	54532.7015	119920.96162	287	766658	3228	15825	41356
1.5 percent	67	12495.4074	16992.54851	30.47	82908.04	1307.0250	5518.7850	14739.0400

Wilcoxon Signed Ranks Test

		N	Mean Rank	Sum of Ranks
1.5% -definite tax	Negative Ranks	61 (a)	35.51	2166
	Positive Ranks	6 (b)	18.67	112
	Ties	0 (c)		
	Total	67		

Definite tax $<$ *1.5%* a
Definite tax $>$ *1.5%* b
Definite tax = 1.5% c

Test Statistics (b)

	1.5 percent - definite tax
Z	6.415 (a)
Asymp. Si g. (2-tailed)	0

A based on Positive Ranks
B Wilcoxon Signed Ranks Test

According to the calculation of average rank and the Wilcoxon rank test for the first hypothesis, it was found that:

1. average rank of definite tax is more and equal to 35.51 compared to the VAT of 1.5% while average rank 1.5% of value added is less than the definite tax and equal to 18.67;
2. Amount of Z-test is equal to 6.415 and its significance level is less than 0.05, therefore, the comparison conducted is meaningful.

So the hypothesis H_0 is confirmed and the hypothesis H_1 is rejected, that is, replacement of VAT at a legal rate of 1.5% rather than tax on income of manufacturing companies in Kermanshah Province will increase the province tax revenues.

Second hypothesis

H_0: Replacement of the VAT at a rate of 3% instead of tax revenues of manufacturing companies in Kermanshah province will increase the province tax revenues.

H_1: Replacement of VAT at a rate of 3% rather than income tax of manufacturing corporates of Kermanshah Province will increase tax revenues of the province.

Second hypothesis test:

Wilcoxon test and calculating the mean rank for definite tax and value added tax of 3% of manufacturing firms.

Table (3): Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25^{th}	50^{th} Median	75^{th}
Definite tax	67	54532.7015	119920.96162	287	766658	3228	15825	41356
3%	67	24990.8158	33845.09749	60.93	165816.09	2614.0500	11037.57	29478.09

Wilcoxon Signed Ranks Test

		N	Mean Rank	Sum of Ranks
3% = Definite tax	Negative Ranks	44(a)	37.2	1637
	Positive Ranks	22(b)	26.09	574
	Ties	1(c)		
	Total	67		

Definite tax $< 3\%\ a$
Definite tax >3% b
Definite tax = 3% c

Test Statistics (b)

	3% - definite tax
Z	3.395 (a)
Asymp. Sig. (2-tailed)	0.001

A based on Positive Ranks
B Wilcoxon Singed Ranks Test

According to the calculation of average rank and Wilcoxon rank test(s) for the second hypothesis, it was found that:

1. Average Rank of definite tax compared to 3% value added tax is more and equal to 37.20; while VAT average rank of 3% is less than definite tax and is equal to 26.09.
2. Amount of Z-test is equal to 3.395, and its significance level is less than 0.05; so, the comparison conducted is significant.

So hypothesis H_0 is confirmed and hypothesis H_1 is rejected, that is, replacing VAT at the legal rate of 3% instead of income taxes on manufacturing companies in Kermanshah Province will not increase tax revenues in the province.

Third hypothesis

H_0: Replacement of the VAT at a rate of 7% rather than income tax of manufacturing corporates in Kermanshah province will increase tax revenues of the province.

H_1: Replacement of VAT at a rate of 7 % rather than income tax of manufacturing companies in Kermanshah province will increase the tax revenues of the province.

The second hypothesis test: Wilcoxon test and calculation of average rank for finite tax and 7% value added tax on manufacturing companies.

Table (4): Descriptive Statistics

	N	Mean	Std. deviation	Minimum	Maximum	Percentiles		
						25^{th}	50^{th} Median	75^{th}
Definite tax	67	54532.7015	119920.96162	287	766,658	3228	15825	41356
7%	67	58311.9036	78971.89415	142.17	386904.21	6099.4500	25754.3300	68782.2100

Wilcoxon Signed Ranks Test

		N	Mean Rank	Sum of Ranks
7% - definite tax	Negative Ranks	15 (a)	40	600
	Positive Ranks	52 (b)	42.27	1678
	Ties	0 (c)		
	Total	67		

Definite tax $< 7\%$ a
Definite tax > 7% b
Definite tax = 7% c

Test Statistics (b)

	7% - Definite tax
Z	3.367 (a)
Asymp. Sig. (2-tailed)	0.001

A based on Positive Ranks
B Wilcoxon Singed Ranks Test

According to the calculation of average rank and Wilcoxon rank test(s) for the third hypothesis, it was found that:

1. Rank average of definite tax, compared with 7% value added tax is less and equal to 40; while the average rank of 7% VAT is more than definite tax and is equal to 42.27;
2. The amount of Z-test is equal to 3.367, and its significance level is less than 0.05, so the comparison was significant.

So the hypothesis H_0 is rejected and the hypothesis H_1 is confirmed; that is, replacement of VAT at the bill rate of 7% rather than income tax of manufacturing companies of Kermanshah province will increase tax revenues of the province.

The fourth hypothesis

H_0: Replacement of VAT at a rate of 10 %, rather than income tax of manufacturing corporate of Kermanshah province won't increase tax revenues of the province.

H_1: Replacement of VAT at a rate of 10% rather than income tax of manufacturing corporates of Kermanshah province will increase the tax revenues.

The fourth hypothesis test: Wilcoxon test and calculation of the average rank for definite tax and value added tax of 10% of manufacturing companies.

Table (5): Descriptive Statistics

Percentiles			Maximum	Minimum	Std. deviation	Mean	N	
75^{th}	50^{th} Median	25^{th}						
41356	15825	3228	766658	287	119920.96162	54532.7015	67	Definite tax
98260.3000	36791.9000	8713.5000	552720.30	203.10	112,816.99164	83302.7194	67	10%

Wilcoxon Signed Ranks Test

Sum of Ranks	Mean Rank	N		
463	30.87	15 (a)	Negative Ranks	7% - definite tax
1815	34.9	52 (b)	Positive Ranks	
		0 (c)	Ties	
		67	Total	

Definite tax $< 10\% \alpha$

10% $>$ definite tax b

10% = definite tax c

Test Statistics (b)

	10% - definite tax
Z	4.223 (a)
Asymp. Sig. (2-tailed)	0.001

A based on Positive Ranks

B Wilcoxon Singed Ranks Test

According to the calculation of average rank and Wilcoxon test for the fourth hypothesis, it was found that:

1. The rank of average of definite tax compared to the tax of 10% of value added tax is less and equal to 30.87; while the average ranking is 10% of VAT is more than definitive tax and it is equal to 34/90;
2. The amount of Z-test is equal to 4.223, and its significance level is less than 0.05, therefore, the comparison conducted is meaningful.

So the hypothesis H_0 is rejected and the hypothesis H_1 is confirmed. That is, replacing the VAT with the standard rate of 10% instead of corporate income tax of Kermanshah Province will increase the province tax revenues.

To ensure the accuracy of the results, in addition to Wilcoxon test, Friedman test has been used as an adjunctive test. Friedman test is one of the nonparametric tests which were used considering the non-normality of data of the present study to exceed the validity of these hypotheses.

10. Using the Friedman test

Friedman test is as the calculation of average rank for certain tax, 1.5, 3, 7 and 10% of value Added of manufacturing companies.

Table 6. Descriptive Statistics

	N	Mean	Std. deviation	Minimum	Maximum	Percentiles		
						25^{th}	50^{th} Median	75^{th}
Certain Tax	67	54532.7015	119920.9616	287	766658	3228	15825	41356
10%	67	83302.719	112816.9916	203.1	552720.30	8713.5	36791.9	98260.3
7%	67	58311.9036	78971.89415	142.17	386904.21	6099.45	25754.33	68782.21
3%	67	24990.8158	33845.09749	60.93	165816.09	2614.0500	11037.57	29478.09
1.5 %	67	12495.4074	16992.54851	30.47	82908.04	1307.0250	5518.7850	14739.0400

Friedman Test

	Mean Rank
Certain Tax	3.02
1.5%	1.09
3%	2.34
7%	3.78
10%	4.78

Test Statistics (a)

N	67
Chi-Square	210.494
Df	4
Asymp. Sig.	0.000

A Friedman Test

Observing the calculated rank averages in this test indicate that the amount of rank 1.5% and 3% VAT (2.34 and 1.09), is less than the rating of the average certain tax (3.02) and the average of 7% and 10% value Added (4.78 and 3.78), is greater than the amount of certain tax average rating (3.02). Also, the chi-square test amount of Friedman test was 210/494, which its observed significance level was less than 5%, so the first and second hypothesis are rejected and the third and fourth hypothesis are confirmed, then we conclude that:

A) Replacement of VAT with the rate of (1.5 and 3 percent) rather than income tax of manufacturing companies in Kermanshah province will increase the province tax revenues.

B) Replacement of VAT with the statutory rate (7, 10%) rather than income tax of manufacturing companies in Kermanshah province will increase the tax revenues.

11. CONCLUSION

Considering the results of this study, on replacing the VAT instead of income tax of manufacturing companies, it should be pointed out that despite that the VAT is an income generating tax; but as present results indicate applying lower rates, such as 1.5 and 3 percent, can question the property of this tax

revenue generating and reduce tax revenues. But the use of rates 7% and 10% of VAT and replacing it with income tax of manufacturing companies will increase tax revenues of the province.

Studying the results of this research confirm this that this study recommends the use of a minimum standard rate of 10% in order to increase tax revenues.

12. Practical Recommendations

Given that the results of the present study have shown that applying lower rates, such as 1.5 and 3% of VAT instead of income tax of manufacturing companies in Kermanshah leads to reduce revenues in the province, therefore, it is recommend that to use the minimum rate of 7 or 10% (preferably 10%) in order to substitute VAT instead of corporates' income tax as the experience of most countries.

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