

## Estimating the tax capacity of goldsmiths versus physicians using the micro approach

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### Abstract

**Background:** The aim of this study was to Estimating the tax capacity of goldsmiths versus physicians using the micro approach

**Method:** The statistical sample included 384 selected gold dealers and physicians tax declaration since 2013 to 2019 in South Khorasan province. Finally, the main research hypotheses were tested in Eviews and SPSS software using a multivariate regression model using panel data method at a confidence level of 0.95.

**Results:** The results of the present study showed that actual tax revenues were less than tax capacity value in public health area. Also, tax capacity of selected jobs had a significant role on provided services in the statistical population of physicians. There was a significant relationship between the tax capacity of South Khorasan Province and health services; as tax capacity increases, public health services will also increase. There was an inverse and significant relationship between financial revenue effort and emotional and mental performance of South Khorasan province and tax avoidance.

**Conclusion:** Tax avoidance would decrease as financial revenue effort increases and cause the hospital and public health service performance.

**Keywords:** Ancillary Services; Health Resources; Hospital; Income Tax; Public Health.

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### Introduction

Taxes are the most common and important source of funding for public health revenues and one of the most efficient and effective fiscal policy tools through which the government can provide many motivational and psychological, social and welfare services to people and guide and manage many economic and social activities (1). Government revenues have mainly depended on the taxes collected from

people to finance government expenditures, and other sources play a secondary role in financing governments (2). Unfortunately, some people's perception of tax collection is limited to earning more revenue to run government organizations, and less attention has been paid to the fact that high share of revenues obtained from oil sales and the low share of tax revenues in this regard have unfavorable effects such as dependence of the country's revenue on the export of a good and deprive a country from using financial tools. However, by using

these tools, many economic disorders can be directed to the right direction. By changing the tax foundations, mechanisms can be created to solve economic problems and increase financial revenue, improve emotional and mental performance, budget deficit, inflation, unemployment, increase motivational and psychological effects, reduce non-oil exports and increase imports, etc. and provide the necessary guarantee for the growth and boom of economy and realization of economic, social and political goals (3).

Tax revenues are one of the most important sources in the budgets of most governments, especially in developed countries, and it is also considered as an economic indicator in ranking of countries. The volume and amount of tax revenues in the budget sources section represent the economic health of the government and the strength of each country's economic system depends on transparency and health of economic system through relying on tax sources and revenues. Tax evasion is one of the most fundamental problems of any tax system and non-observing ethical issues by taxpayers is considered as the main reasons (4).

In addition to tax evasion, there are other methods that reduce tax payments, which are known as tax avoidance due to being legal and justifying of tax reduction strategy. Based on Hosseini et al, finding, tax avoidance is a form of tax savings and is considered as a transaction to minimize tax liabilities by preventing the transfer of cash from shareholders to government (5).

Another definition refers to legal shortcomings and gaps in the tax law and considers it as a way of presenting transactions and events in a certain period of time to use tax benefits in which a person seeks ways and abuses tax laws officially to reduce his payable taxes. The tax system is efficient when it can achieve the maximum receivable tax revenue, but the question is what the tax capacity level of each community is. In fact, tax capacity is the

volume of tax that community can pay and its estimation can express how much effort has been put into providing tax revenues and to what extent this revenue can be increased (6).

If tax collection is more than tax capacity in one period, it will reduce tax revenue in the coming years, and if it is less than potential capacity, the government will face financial problems to achieve its economic goals (7). Also, tax capacity reveals how much effort a country or region has made to equip tax sources, and how much it can increase these sources. The share of value added of various economic sectors in GDP is one of the important factors in determining tax capacity in a region, so that with increasing this share, the tax capacity of that sector will be higher (8).

In recent years, some researchers such as Chelliah et al, have estimated tax capacity based on the empirical method for determining the optimal amount of tax based on the econometric model. In this regard, considerable attention has not been paid to jobs like physicians and gold dealers (9).

Gaining knowledge on the level of collectable tax revenue in various tax sources, especially jobs such as physicians and gold dealers leads to optimal allocation of sources to collect them and helps the government in accurate financial planning and engagement of jobs such as physicians and gold dealers in financing public expenditures of government. Tax capacity of physicians and gold dealers can be one of the largest tax sources in the country, which can be collected in the long term in line with tax justice based on its level of distribution and combination of revenue and laws of each country. Given what was stated above, the aim of this study was to investigate the Estimating the tax capacity of goldsmiths versus physicians using the micro approach (10).

### ***Theoretical Framework***

*Tax:* Tax is a type of expenditure that members of community pay to their government to use facilities and sources, public and essential services, ensure security and public defense, and increase the motivational and psychological effects. It is in fact transfer of a part of revenue of community to government or giving a part of profit of economic activities to government in exchange for tools and facilities that government has provided to achieve revenue and profits (11).

Tax, as the most important source of government revenue, play a special role in financing the public sector. A healthy economy is an economy in which most of the government's current development and expenditures are provided by taxes. However, in some countries, including Iran, due to access to alternative financial sources such as oil, tax revenues are not properly considered as stable revenue and policies in line with the resistance economy are not implemented. Incorrect implementation of tax policies weakens various economic sectors slows down the movement of economic and social development (12).

Hence, given the importance of taxes as a major source of revenue, one of the important economic goals of development plans is to reduce reliance on oil revenues. Thus, increasing the share of tax revenues in the government budget is the best way to reduce reliance on oil revenues and provides a stable and endogenous national source for government (13).

*Tax avoidance:* Lack of revenue to achieve public goals is one of the major problems for governments in developing countries. It also exacerbates the psychological problems of community.

Taxes, as the most important source of revenue for governments, play a major role in their financing. Nowadays, everyone agrees on government intervention, and disagreements remain only the size of government. Taxes are considered as the

first step of government intervention in economy (14).

*Tax capacity:* Tax capacity is the amount of tax that community can pay, and it depends on revenues, expenditure and investment on one hand and relies on long-term goals and short-term and medium-term planning.

*Tax effort:* A tax effort is an effort of a country to collect the tax revenue determined by the tax tool or leverage available in that country. Tax leverage is a tax base that is easily accessible and creates an effective source of revenue. The first step in examining a country's tax effort is to predict the tax share, which is determined by the economic characteristics of that country. The ratio of share of actual tax (tax revenue as a percentage of GDP) to share of predicted tax is known as tax effort index:

$$(TEI) = \frac{\text{actual tax share}}{\text{predicted tax share}} = \text{tax effort}$$

If TEI is greater than one for a country, the actual performance is higher than expected and the country is considered as a country with a high tax effort. If the TEI is less than one for a country, the country is considered as a country with a low tax effort (15).

### ***Research Hypotheses:***

Actual tax revenues are less than the tax capacity of selected jobs in South Khorasan Province.

Tax capacity of selected jobs has a significant role on the tax effort of South Khorasan province.

There is a significant relationship between the tax capacity of South Khorasan province and tax avoidance.

There is a significant relationship between tax efforts in South Khorasan province and tax avoidance.

### **Method**

The present research was a cross-sectional study. The method of estimating tax capacity in this study was to use the value-added information of selected jobs

(physicians and gold dealers) and convert them to per capita value added of gold dealers and physicians using the workshop census data and to apply tax laws and calculate the taxes of gold dealers and physicians. The financial information and data required to calculate tax capacity were extracted from tax declaration of gold dealers and physicians.

To review theoretical foundations of research subject and to collect information on the theoretical framework and research background, the library method was used to use domestic and foreign books and journals and Delphi method was used to determine the standard questionnaire framework for measuring indicators related to tax avoidance variable.

In the present study, the model of tax capacity for the period of 2013-2019 was estimated by the ordinary least squares (OLS) method and then the tax effort and tax revenues of gold dealers and physicians were calculated. Tax effort was defined as the ratio of actual tax capacity (collected taxes) to potential tax capacity. In fact, the tax effort represents the gap between the actual tax that should be obtained according to the economic capacities of the community and the tax that is obtained. Since the main aim of the study was to use nonlinear methods in interpreting tax capacity, it could be stated that according to the theoretical foundations and literature, tax capacity could be affected by some variables based on many studies, including the study conducted by (Chelliah, 1971).

$$\text{Model (1)} \quad T = f[V.S.X.N.E.Inf]$$

Where,

T: The ratio of tax revenue of selected jobs to the total tax revenue of province.

V: Value added related to selected jobs.

S: Total revenue related to selected jobs.

X: Volume of exchanges related to selected jobs.

N: Number of selected jobs in the province.

E: Value added due to an increase in the exchange rate related to selected jobs

Inf: Inflation rate

Tax effort was the ratio of collected tax (actual) to potential tax (tax capacity). Thus, to calculate the tax effort, the tax capacity is first calculated and then the collected tax is divided by potential tax (tax capacity). The number obtained for the tax effort must be between 0 and 1.

When the tax effort is closer to one, it will show that the desired job has made more effort to achieve tax capacity, and as this ratio is higher in one job compared to other jobs, the performance of that job in achieving tax capacity will be higher.

To measure tax avoidance in this study, by relying on the study conducted by McGee et al., an 18-item questionnaire was used. This questionnaire is scored on a five-point Likert scale ranging from strongly disagree = 1, disagree = 2, I have no idea = 3, agree = 4 and strongly agree = 5. In the tax avoidance variable, due to its qualitative nature, Cronbach's alpha, KMO test and Bartlett test were used for validity and reliability (16).

Regression was used for estimation of tax capacity. Finally, the main research hypotheses were tested in PLS, Eviews and SPSS software using a multivariate regression model using panel data method at a confidence level of 0.95.

## Results

Table 1 shows the descriptive statistics of the study variables in selected jobs.

Cronbach's alpha was 0.891 for the 18-item tax avoidance questionnaire. Since Cronbach's alpha value was greater than 0.7, the test has an acceptable reliability. The data adequacy index (KMO) was 0.857 and the Bartlett test p-value was <0.001. According to the results of KMO and Bartlett tests, it is observed that the KMO index value is more than 0.6, indicating that the number of samples is adequate for

Table1: Descriptive statistics of model variables based on selected jobs

variables	Job	mean	median	SD	Skewness	kurtosis	min	max
Ratio of tax revenue of selected jobs to total tax revenue of province T	gold dealers	0.0000	0.0000	0.0000	0.7600	0.4000	0.0000	0.0000
	Physicians	0.0000	0.0000	0.0000	0.8400	0.4900	0.0000	0.0000
Value added related to selected jobs V	gold dealers	0.1600	0.1600	0.1000	0.9400	0.0100	0.0400	0.3700
	Physicians	0.1600	0.1100	0.1300	1.4700	0.5900	0.0700	0.4400
Total revenue related to selected jobs S	gold dealers	8.2300	8.2800	0.7000	-0.0200	-0.9200	6.9900	10.2200
	Physicians	9.4400	9.4900	0.4300	-0.4700	-0.8100	8.5200	10.1200
Volume of exchanges related to selected jobs X	gold dealers	11.0900	11.1000	0.1800	-0.5000	-0.1100	10.6000	11.4900
	Physicians	10.5300	10.5500	0.1700	-0.5200	-0.2200	10.0300	10.9200
Number of selected jobs in province N	gold dealers	70.0000	70.0000	0.0000			70.0000	70.0000
	Physicians	220.000	220.000	0.0000			220.000	220.000
Value added due to the increase in the exchange rate related to selected jobs E	gold dealers	0.1300	0.1200	0.0800	0.9400	0.0100	0.0300	0.2900
	Physicians	0.1600	0.1100	0.1300	1.4700	0.5900	0.0700	0.4400
Inflation rate Inf	gold dealers	0.1800	0.1400	0.1000	0.7300	-1.0800	0.0900	0.3500
	Physicians	0.1800	0.1400	0.1000	0.7300	-1.0800	0.0900	0.3500
tax capacity	gold dealers	0.0500	0.0500	0.0200	0.3100	-0.1300	0.0200	0.1000
	Physicians	0.0100	0.0100	0.0000	0.8700	1400.0	0.0000	0.0100
tax effort	gold dealers	0.1600	0.1600	0.0300	0.2500	1.2100	0.0900	0.3100
	Physicians	0.1700	0.1600	0.0500	0.4800	0.2200	0.0700	0.3500

Table 2. Results of data analysis to estimate the tax capacity of selected jobs

Variables	Jobs	coefficients	SE	T statistic	sig
Intercept C	Gold dealers	-0.70567	0.185494	-3.804279	0.0002
	Physicians	0.143513	0.046986	3.054393	0.0023
Value added related to selected jobs V	Gold dealers	-0.941825	0.069271	-13.59626	0.0000
	Physicians	0.086116	0.026419	3.259617	0.0011
Total revenue related to selected jobs S	Gold dealers	-0.000202	0.000411	-0.491878	0.6231
	Physicians	0.000912	82.8E-05	10.34541	0.0000
Volume of exchanges related to selected jobs X	Gold dealers	0.059285	001621.0	36.58212	0.0000
	Physicians	0.002288	0.000247	9.268112	0.0000
Number of selected jobs in province N	Gold dealers	0.001363	0.002625	0.519203	0.6039
	Physicians	-0.000773	0.000205	-3.764509	0.0002
Value added due to the increase in the exchange rate related to selected jobs E	Gold dealers	062029.1	0.087469	14177.12	0.0000
	Physicians	-0.101846	0.026244	-3.880795	0.0001
F	Gold dealers	121115.0	0.003451	09599.35	0.0000
	Physicians	0.023143	0.000629	36.78629	0.0000
coefficient of determination	Gold dealers	0.8823	Adjusted coefficient of determination		0.8806
	Physicians	0.4788			0.4764
F statistics	Gold dealers	516.0342	F statistics significance		2.4384
	Physicians	201.0566	F statistics significance		1.9857



factor analysis. Also, the significance level of Bartlett test is less than 0.05, indicating that factor analysis is an appropriate factor model for identifying the structure.

The generalized least squares (GLS) method was used to estimate the model to eliminate the variance heterogeneity (Table 2).

#### Testing the first hypothesis

Table 3 shows the percentages of total tax capacity revenue and actual revenue in each year from 2013 to 2018 in selected jobs. In gold dealers, the actual tax revenue is less than the tax capacity revenue. Thus, the first hypothesis is confirmed at the 95% confidence level in the statistical population of gold dealers in South Khorasan province. Therefore, the actual tax revenues are less than the tax capacity of selected jobs in South Khorasan Province. In physicians, the actual tax revenue is less than the tax capacity revenue, so the first hypothesis is confirmed at 95% confidence level in the statistical population of physicians in South Khorasan province. Thus, actual tax revenues are less than the tax capacity of selected jobs in South Khorasan Province.

Finally, the first hypothesis is confirmed in both statistical populations.

#### Test the second hypothesis

Table 4 shows total tax capacity revenue and tax effort in each year from 2013 to 2018 in selected jobs. In gold dealers, tax effort failed to justify a large percentage of tax capacity revenue, the most effect of it was related to 2017 with 13.72 percent, so the second hypothesis is rejected. Hence, the instatistical population of gold dealers in South Khorasan province, tax capacity of selected jobs does not play a significant role in the tax effort of South Khorasan province. In Physicians, tax effort can justify a large percentage of tax capacity revenue and the most effect of it is related to 2018 with 48.45 percent, so the second hypothesis is confirmed. Hence, in the statistical population of physicians in South Khorasan province, the tax capacity of selected jobs has a significant role on the tax effort of South Khorasan province.

Finally, the second hypothesis is rejected in the statistical population of gold dealers, but it is confirmed in the statistical population of physicians. There is no

**Table 3.** Results of data analysis to test the first main hypothesis - Gold dealer

job	Year	Actual tax revenue	Tax capacity
Gold dealer	2013	5.220120122	5.712926474
	2014	3.566428085	5.686832324
	2015	3.936555545	5.537604939
	2016	3.428721696	5.613833529
	2017	2.866319748	5.51731427
	2018	3.088028415	5.623876878
Physicians	2013	2.487737545	2.7137089
	2014	1.719871299	2.724222453
	2015	1.710958932	2.695104541
	2016	1.594163248	2.679197774
	2017	1.472904395	2.713870541
	2018	1.217538782	2.670476487

**Table 4.** Results of data analysis to test the second main hypothesis in selected jobs

Job	year	Tax capacity	Tax effort
Gold dealer	2013	0.052201201	0.076083266
	2014	0.035664281	0.112420074
	2015	0.039365555	0.098297397
	2016	0.034287217	0.115529718
	2017	0.028663197	0.137230956
	2018	0.030880284	0.129236564
Physicians	2013	0.024877375	0.239578049
	2014	0.017198713	0.348724891
	2015	0.017109589	0.34672878
	2016	0.015941632	0.369968597
	2017	0.014729044	0.405749288
	2018	0.012175388	0.484578167

significant relationship between tax capacity of South Khorasan province and tax avoidance and the second hypothesis is rejected at the 95% confidence level.

Testing the third hypothesis.

The correlation between tax capacity and tax avoidance is equal to 0.834 and based on estimated significance level which is  $<0.001$  and it can be stated that the null hypothesis is rejected and apposite hypothesis is confirmed at the confidence level of 0.95%. As a result, there is a significant relationship between the tax capacity of South Khorasan province and tax avoidance, meaning that with increasing tax capacity, tax avoidance will increase.

Testing the fourth hypothesis

The correlation between tax effort and tax avoidance is equal to -0.0194 and based on the estimated significance level which is  $<0.001$  and it can be stated that the null hypothesis is rejected and opposite hypothesis is confirmed at the confidence level of 0.95%. As a result, there is an inverse and significant relationship between effort of financial revenue on the emotional and mental performance of South Khorasan province and tax

avoidance, meaning that with increasing financial revenue effort, tax avoidance will decrease.

### Discussion

In the first hypothesis, results revealed that actual tax revenues are less than the capacity of effect of financial revenue on emotional and mental performance in different jobs (physicians and gold dealers) selected in South Khorasan province. Tax capacity refers to ability of a community to pay tax. This issue might be due the reason that some tax sources have not been identified and have not been accurately estimated, or the tax laws that have been posed for them are ineffective due to inconsistencies or the sources have been identified and the necessary information is available about them but they do not pay taxes or their paid tax has been lower than their capacity. Also, some sources have been identified, but the existence of tax and legal exemptions in practice has eliminated them from actual tax capacity. Also, it is possible that sources have identified, but their file is not active in the tax system due to various reasons. Accumulation of such files and delays in collecting them increase the error of determining the actual tax and

cause a greater gap between tax capacity and actual tax revenues. Results of this hypothesis are consistent with the results of the study conducted by Hollenbach Florian et al. Their results showed that regions with a higher level of inequality have lower revenue from tax on wealth. Also, the results showed that municipalities with high levels of inequality were less likely to use the federal grant program to increase tax collection capacity. (17).

In the second hypothesis, results revealed that in the statistical population of physicians, tax effort in each year can justify a large percentage of tax capacity revenue and the most effect of it is related to 2018 with a rate of 48.45 percent, so the second hypothesis is confirmed in the population of physicians, but it is rejected in the population of gold dealers. Tax capacity is the amount of tax that can potentially be collected based on the factors affecting the tax ratio. In other words, the tax effort shows the amount of tax collected in relation to the tax capacity, so that with increasing tax effort, its value will be closer to 1. Thus, it can be stated that tax capacity has a significant role in tax effort. However, in the present study, it was confirmed only for the statistical population of physicians and no evidence was found in the statistical population of gold dealers. Dyreng et al., conducted a research on intrinsic and extrinsic motivations for tax acceptance in Germany. Their results showed that manipulation of inhibitory factors (extrinsic motivation) has little effect on the intrinsic motivation to accept taxes (18). They also stated that motivation to accept taxes with monetary rewards does not increase significantly. Goben and Dijke showed that with the increase of justice, taxpayers' trust in the tax affairs organization will increase, and consequently, tax self-declaration will increase. In this regard, the legitimate power of organization has a negative effect and the coercive power of the organization plays a positive role in increasing self-declaration (19).

In the third hypothesis, results revealed a significant relationship between the tax capacity of South Khorasan province and tax avoidance. Some reasons make it difficult to accurately estimate the tax capacity, such as not knowing the level of taxpayers' revenue, not documenting the level of taxpayers' revenue, lack of possibility of exchange information completely, lack of a monitoring system for tax collection, the inability to provide statistics and accurate tax reports and inappropriateness of the tax rate according to the daily value of goods. Results of this hypothesis that suggest tax avoidance increases due to increased tax capacity indicate that tax capacity has not been accurately estimated. Mazrooei et al investigated the factors affecting tax acceptance violations and by examining 19028 respondents, they showed that the awareness-raising strategy is effective in reducing tax violation and increases tax revenues (20).

Several factors such as social norms, moral encouragement, tax morale and deterrence are also effective in preventing tax violation. Armstrong et al. investigated the effect of leadership on tax avoidance. They found that the effect of corporate governance is higher at both ends of the spectrum (21). The results also revealed a positive relationship between the percentage of non-executive members as well as the financial skills and expertise of the board at the top of the tax avoidance function. In a study entitled "Production versus revenue efficiency with limited tax capacity: theory and evidence from Pakistan, using the tax records of Pakistani companies in the Tax Affairs Organization", Best Michael et al. estimated that tax turnover led to a reduction in tax evasion through 60 to 70% of the company's revenue. The results of the study showed that the change from profit to tax turnover results in an increase in revenue of about 74% without reducing the accumulated profits, despite the inefficiency of production (22).



Alaei identified and prioritized factors affecting tax compliance in the community of physicians in Ardabil province. Results revealed that except for the social dimension, other variables including legal, management, economic, tax and political dimensions were identified as factors affecting tax compliance from the perspective of taxable physicians in Ardabil province and finally some recommendations were presented (23). Khajavi et al showed that there is a positive and significant relationship between tax avoidance and risk factors stock price fall in companies listed in the Tehran Stock Exchange (24).

Sarfarazi et al. stated that tax revenues have nowadays a special importance in government financing, so that tax legitimizes a government. Increasing tax revenues and paying more attention to this issue is necessary, especially in a single-product economy similar to Iran, which its main source of revenue is volatile and unpredictable oil revenues (25).

Finally, in the fourth hypothesis, results revealed an inverse and significant relationship between the tax effort of South Khorasan province and tax avoidance. Although the tax system has better performance and efficiency, the level of tax effort will be higher. Knowing and estimating actual capacity of country to pay taxes is necessary. Identifying the factors affecting tax collection helps taxpayers to estimate share of each of these factors in the amount of collected tax and tax capacity.

Alikhani examined the relationship between corporate governance and tax avoidance. The results revealed no relationship between the percentage of non-executive board members and tax avoidance (based on effective tax rate). The results also showed a significant relationship between the percentage of ownership of board members and tax avoidance and between percentage of institutional shareholders and tax avoidance (26).

Yadollahzadeh et al. carried out a study entitled "Tax gap analysis and factors affecting it using tax capacity estimation in Ilam Province. The results of estimating the tax capacity of province indicated that the value added of services, industry and mining, construction and per capita revenue have a positive and significant effect on taxes collected in the province (27).

Tax gap was obtained with help of actual tax revenues and the tax capacity of the province. Tax gap has been increasing over the study years. The best status in the tax system is when the actual revenues are at the optimal level of tax capacity because the high and low tax revenues are followed by some problems. McGee et al. carried out a research entitled "investigating prioritizing of factors affecting the tax capacity of Semnan province using fuzzy TOPSIS technique." Results showed that external factors have a greater impact on the tax capacity of Semnan province and active units and value-added created by them can be considered as the most important factors representing the economic power community in paying tax (16).

#### ***Authors' contributions***

Study concept and design: AK, HN; Data gathering: AK, HN, ZH; Data analysis: AK; AH; Writing manuscript: AK, HN, ZH; Revise manuscript: AK; Approve manuscript: AK, HN, ZH.

#### ***Conflict of interest***

None declared.

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#### **References**

1. Piraei K, Soltani-Shirazi E. Estimation of tax capacity in Fars province. *Specialized tax quarterly journal*. 2008;16 (1):43-72.
2. Falahati A, Fattahi S, Abbaspour S, Nazifi-Naeini M. Estimation of Iran's tax capacity using neural networks. *Journal of Tax Research (Scientific-Research)*. 2010;18(8):103-124.

3. Tari F., Poordehghan Ardakan M. Estimation of tax capacity and effort in Yazd province (by modeling the general form of Laffer curve). *Economic Research and Policy*. 2012;63(20):189-206.
4. Lari Dasht Bayaz M, Khadem H, Abdi A, Marvian Hosseini Z. Investigating the Ethical Behavior of Large Taxpayers from a Postmodern Ethical Perspective. *Journal of Taxation*, 2014;24(5):9-35.
5. Hosseini L. 2019. Estimation of tax capacity of West Azerbaijan province, Master Thesis, Payam Noor university of Tehran.
6. Tait A, Grätz W, Eichengreen B. International Comparisons of Taxation for Selected Developing Countries, 1972-76. *Staff Papers-International Monetary Fund*. 1979;6(2):123-156.
7. Abbasi E, Mousavi M, Jani M. Estimation of tax capacity of Golestan province. *Economic Research (Iranian Islamic Approach)*, 2013;48(13):147-164.
8. Loeffler C, Sieg H, MacDonald J, Chirico M, Inman R. Deterring Delinquency: A Field Experiment in Improving Tax Compliance Behavior. *The Field Experiments Website*, 2016. Available from: <https://econpapers.repec.org/paper/febnatura/00543.htm>
9. Chelliah RJ. Trends in Taxation in Developing Countries (Les tendances de la fiscalité dans les pays en voie de développement) (Tendencias tributarias en los países en desarrollo). *Staff Papers-International Monetary Fund*. 1971;12(2):254-331.
10. Alfirman L. Estimating stochastic frontier tax potential: Can Indonesian local governments increase tax revenues under decentralization, Department of Economics, University of Colorado at Boulder, Colorado, Working Paper, 2003;16(7):3-19.
11. Mohammadi T. 2015. Analysis of the tax gap and the factors affecting it using estimates of tax capacity in Ilam province, Master Thesis, Ilam University.
12. Shirkhani F. Investigating economic issues and policies, *Journal of Economics and Finance*. 2006;6(5):41-53.
13. Sepehrdoost H, Rajabi F, Barooti M. Investigating the effect of good governance on the revenue performance of the tax system. *Journal of Applied Theories of Economics*. 2015;2(2):103-126.
14. Zare M. 2011. Estimating the tax capacity of Semnan province and comparing it with tax effort, Master Thesis, Payame Noor University of Karaj.
15. Habibi S, Ahmadi S, Hassanzadeh Baradaran R. The relationship between corporate governance and tax avoidance. *Quantitative Models and Techniques in Management*. 2016;11(3):50-60.
16. McGee R, Devos K, Benk S. Attitudes towards Tax Evasion in Turkey and Australia: A Comparative Study. *Social Sciences*. 2016;5(1):1-13.
17. Hollenbach Florian M, Silva T. Fiscal Capacity and Inequality: Evidence from Brazilian Municipalities. *Journal of politics*. 2018;16(2):117-132.
18. Dyreng S, Hanlon M, Mayde E. Long-run corporate tax avoidance. *The Accounting Review*. 2019;8(3):61-82.
19. Gobena L, Dijke M. Power, justice, and trust: A moderated mediation analysis of tax compliance among Ethiopian business owners. *Journal of Economic Psychology*. 2016;5(2):24-37.
20. Mazrooei S. 2015. Investigating the relationship between bold tax policy, non-executive managers and capital structure in companies listed on the Tehran Stock Exchange, Master Thesis, Al-Zahra University.
21. Armstrong C, Blouin J, Jagolinzer A, Larcker D. Corporate governance, incentives, and tax avoidance. *Journal of Accounting and Economics*. 2015;60(1):1-17.
22. Best Michael C, Brockmeyer A, Kleven Henrik J, Spinnewijn J, Waseem M. Production versus revenue efficiency with limited tax capacity: theory and evidence from Pakistan. *Journal of Political Economy*. 2015;13(6):1311-1355.
23. Alaei A. 2009. Identifying and prioritizing the factors affecting tax compliance in the community of physicians in Ardabil province, Master Thesis, Islamic Azad University. Meshkinshahr Branch.
24. Khajavi S, Rezaei G, Bagheri M. Investigating the mediating role of managers' capabilities on the relationship between tax avoidance and the risk of stock price fall in companies listed on the Tehran Stock Exchange. *Financial Management Strategy*. 2018;21(6):1-24.
25. Sarfarazi M, Jamshidi H, Farsinia H. Ways to increase trust and public participation in tax payment. *Third International Conference on Research in Science and Engineering*, 2017;13(6): 114-128.
26. Mohammad Alikhani E. 2019. Investigating and prioritizing the factors affecting the tax capacity of Semnan province using fuzzy TOPSIS technique. Master Thesis, Islamic Azad University of Shahroud.
27. Yadollahzadeh Tabari N, Nazifi Naeini M, Abbaspour S. Estimation of tax capacity of Mazandaran province with artificial neural network approach. *The first national electronic conference on Iran's economic outlook*, 2018.