

Examine the implementation of Law on VAT on increase tax revenue

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Abstract: Tax is the best tool for providing general tax revenues, once the distribution of wealth and income, create fiscal discipline and economic management. Value added tax is a new tax than other introduced taxes, expand system is one of the best the tax developments to arises eliminate or reduce the problems and traditional taxes deficiencies and increase government revenue. In this study, using data autoregressive off setar monthly of Yazd province in the years 2005 to 2013 to examine the impact of the value added tax revenues have been studied. The results show that implementation of the VAT on the increased Yazd tax revenue is positive and significant impact.

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Introduction

Every country in order to improve the economic structure and stability requires constant income that can increase the success of the Governments at long-term Planning and Policy. And the basic objectives of economic activities are including issues such as resource allocation and equitable distribution of income, economic growth, increase employment, economic stability, maintain the general level of prices, international trade and balance of payments. Economic operators, to conduct the affairs and achieve economy lofty goals of each country's, you have to pay heavy costs and to finance the expenditures necessary to develop several income sources.

Among the types of state, taxes as a source of permanent and predictable, always been considered statesmen. tax what are the income or to order an instrument for policy-making impose different effects on the economy.

Taxes on the one hand, due to the impact of taxation affecting on the distribution, on the other hand, the shift of resources from one market to another have assignment. Tax is the best tool to provide general revenues, the load distribution of wealth and income, establish fiscal discipline and economic management, financing, such as public security, health, education, and other needs appropriate sources, and ongoing for governments. Tax is the most important source of revenue to cover these costs in today's world unlike the method of financing through the sale of oil, leading to increased demand and inflation and is healthier way affect on the composition of demand. Changes in the economy and the resulting changes in the production and

distribution of wealth and income, requires review and revision types and how to collect them.

Taxes in addition to can modify of income and wealth gaps that and to balance and adjust the relative of income and wealth lead to direct resources towards productive activities as well as fiscal discipline and avoid the mess as they have to follow.

Studies indicate that the tax system of the country, despite all efforts to meet the targets suffer the shortcomings of the country's total tax receipts is not enough to half the current expenses of the government, so the budget is on the source of such as oil.

Statement of the problem

The main source of government revenue to cover these costs in today's world is a value added tax unlike the method of financing through the sale of oil, leading to increased demand and inflation is healthier way affect on the composition of demand. Changes in the economy and the resulting changes in the production and distribution of wealth and income is required to review and revise the value added tax. Value added tax (Vat) is a multi-stage tax at different stages of the production chain distribution will be getting based on a percentage of the value added of goods produced or services provided. tax paid at each stage of Import, production and distribution chain moving to the next phase element to be paid ultimately by the final consumer. This is an indirect tax on consumption that might otherwise accumulate boast in all stages of production and distribution of private goods and services.

Given the significant effect of taxes on economic variables, adopted an appropriate tax policy that provide objectives, has the least impact of disruption

to the economy and the country's economic development. In fact, effective tax policy, has been an important factor in achieving the tax goals and is a symbol of national sovereignty and of the economic policies of each country and this new tax system would be effective and appropriate role to play in the management of the economy and increase the satisfaction of people. Therefore, this study attempts to be studied and explored the problems and obstacles of enforcement that law perspective taxpayers Yazd and in the end, based on the results of the research provided recommendations to deputy managers in VAT tax in Yazd province.

Literature

Alfierman (2003): In an article entitled "Estimated Tax boundary points using variables such as the ratio of tax, share of the agricultural sector, participation rates, labor, Chaw and Bali provinces in (Indonesia) concluded that government administrative incompetence, lack of updated technology and equipment, and lack of human resources is the most important factor of the tax gap.

Litlohed (2002): In an article entitled "China's tax effort" stated that attempts measure of tax purposes policy and identify tax potential for increased funding public spending done. He used variables such as income tax, GDP per capita, the share of agricultural sector and the share of total exports and imports to GDP and population growth rates. And came to the conclusion that China's tax effort, which is 43% lower than the average standard tax effort index.

Kestelzo et Al (2001): The study have paid estimated the tax capacity of local governments in Spain. This study used data from the period 1993-1999. They estimated fiscal capacity of local governments in Spain by using OLS econometric methods to the conclusion that liability tax potential reduction in tax, 35 percent of the shock reducing public spending, 25 percent increase in the level of taxes and the remaining, 40 (percent) due to the increased level of liabilities covered.

Altoni (2001): In research using time series and cross sectional data of 16 Arab countries (the countries in three groups of the Persian Gulf, and the non-grouped) during the years 1994-2000 as that many Arab governments to generate sufficient revenues of public spending face suffer and may a deficit. Abstract considered the purpose of this study was to compare the tax effort between the Arab countries in research theories determining important factors of the share of tax revenues and in the production of national gross income per capita is expressed share of agriculture sector and the mining sector's contribution to GDP.

Research hypotheses

(1) Implementation of VAT is a positive and meaningful impact on increase of tax revenue.

Data and Variables

Data of this statistically study are seasonal in 2005-2013. Variables of study are tax revenues of Yazd province and value added tax (vtax) of this city. Note that all information is collected from annals of country tax organization and Yazd tax organization.

Table 1-3: variables of research (annals of country tax organization)

No	Variables	Sign	Variable type
1	Yazd tax revenues		independent

Research Patterns

Introducing threshold regression model:

Threshold regression method provided by Hansen (1999) wanted to answer whether regression functions can pass all observations uniformly or it can break into separate groups?

Traditional analysis of nonlinear relations is base on the method of dividing pattern to two groups endogenously that is base on individual preference and judgment. If this method is chosen, selection of regimes' number and their location is arbitrary and according to guidelines of past economical ideas. So the correctness of results and estimated parameters are questionable, since it is strictly dependent of point selection of threshold that occurs there.

Another method used in threshold analysis is sequential regression or regression tree that specifies number & location of thresholds indigenously and by ordering existing data (Lee & Vang 2005). Hansen expanded this method by providing a new technique in economy evaluating. Another advantage of this study is that imaginaries didn't interfere in forming of nonlinear relations and no nonlinear subform is needed for evaluating nonlinear relations.

If balanced synthetic data is $[y_{it}, q_{it}, x_{it}: 1 \leq i < n, 1 \leq t < T]$, that i is the sections and t the time, so independent variable of y_{it} and q_{it} are scalar while x_{it} regression is a vector. Structural form of this model is as follow:

$$Y_{it} = \mu_i + \beta_1' x_{it} I(q_{it} \leq \gamma) + \beta_2' x_{it} I(q_{it} > \gamma) + e_{it}$$

That $I(\cdot)$ is index function.

Observations are divided to two regimes according to this issue that threshold variable q_{it} is lower or higher than threshold γ . These regimes are clarified by difference of β_1 and β_2 regression slopes. To recognizing β_1 and β_2 , x_{it} factors should not change over time. Also it's believed that q_{it} threshold variable will not change over time too. Also e_{it} seems to be independent and distributed equally & its average is 0 and its limited variance is σ^2 .

Thresholds are everywhere. It doesn't affect little changes but big changes will affect it surely. When deviations are big enough, convergence will appear. This section will investigate modeling processes that are used to specifying, estimating & testing multi variable models. Thresholds, by themselves & a transform variable, will describe regimes with different dynamic behaviors for indigenous variables of system. These estimated setar thresholds are used for prediction and analysis of asymmetric responses to shocks.

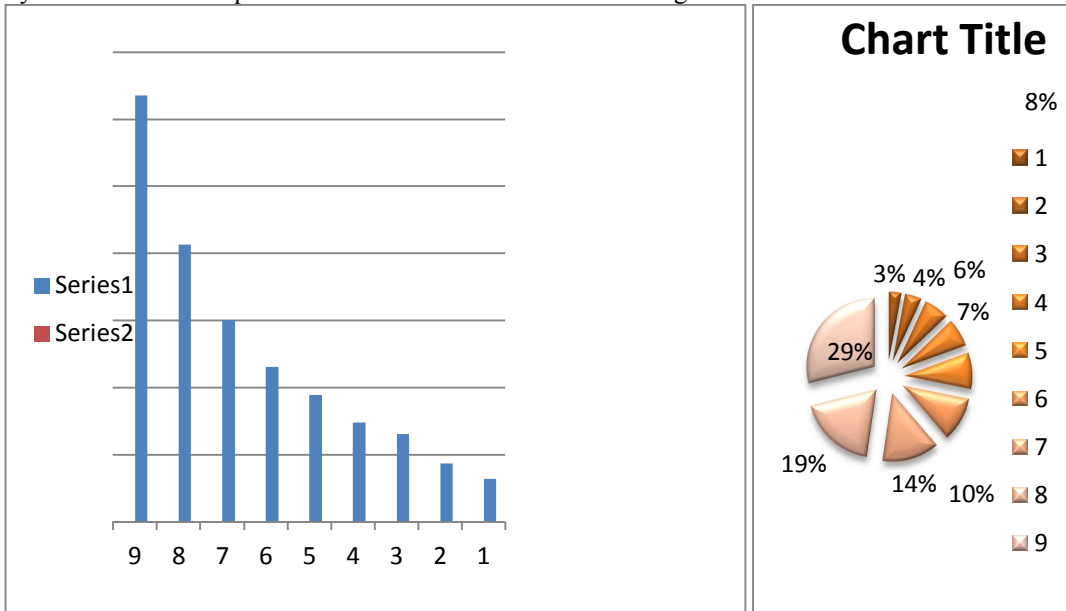
Models of changing regime in methods that regime develop over time, are different. In sum there are two deferent groups. First group models assume that regime can be clarify by observable variable. Past or current regimes are certain, though they may be created by statistical techniques. Models of second

group assume that regime can't be seen in reality but it is clarified by an unobservable possible process, so it shows that we can't be sure that a special regime has occurred in a special point of time but some possibilities can be attributed to occurrences of different regimes.

To simplify this definitions, we first will focus on models with two regimes. Some statements to expand these models to allow multiple regimes are below.

Studying process of value added tax and tax revenues

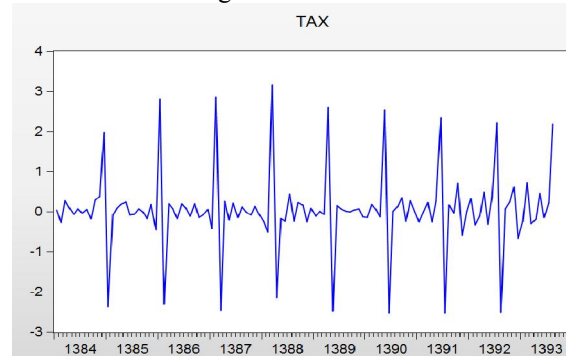
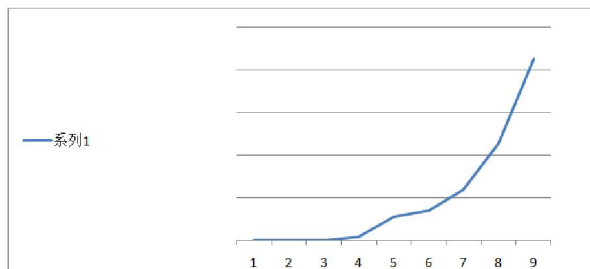
We will look for process of model main variables changes. Variable process of Yazd tax revenues are shown in diagram. As it can be seen from the diagram, tax revenues of this province in 2005 to 2013 years are increasing.



The diagram shows the process of Yazd value added tax in 2005 to 2013. Lowest value taxes are before doing value added in 2005 to 2007 and after 2008 it increased due to executing policy of value added tax that this process increased received revenues.

Review of research data

Data used in this research, i.e. total tax revenues that are collection of direct and indirect taxes in periods of 2005-2013, are used in estimating research model. Process of time series growth rate of Yazd tax revenues data are shown in diagram 3-4.



Single Root Test

Before analyzing tax revenues and the effect of policy of value added tax, and in order to avoid false regression & unacceptable results, we will first study the stability of data. This study has used data of logarithm changes of Yazd tax revenues as follow.

$$v_{tax_t} = \log(tax_t) - \log(tax_{t-1})$$

Dicker – Foulter test is made of most common tests that are used for recognizing stability. Results of using this test for data of logarithms changes of value added tax are shown in table 1.

Table 1. Results of single root test

variable	Dicker – Foulter test static	Critical amount of McKinnon		
		Assurance level 1%	Assurance level 5%	Assurance level 10%
vtaxt	-24.758	-3.501	-2.892	-2.583

Results of table 1 show the coefficients of single root test of tax revenues' data. Since amounts of Dicker – Foulter test static (ADF) is more than amounts of critical amounts in 1%, 5% & 10% levels, so variable under investigation lacks single root and therefore lacks static or I(o).

Table 2. Optimized pause of model

Model	Regimes number	Pause number	Acetic scale
K	2	1	-292.50
	2	1	-316.26
	2	3	-315.12

Selection of model optimized pause

After stability of data are proved, to analyze the effects of value added tax policy on total tax revenues, data time series behavior are studied by using threshold models approach and to do this threshold auto regressions investigated two situation in different pauses and results are shown in table 2.

Optimal model estimate setar (k)

Table 3 shows the results of threshold model process to change growth rate of Yazd tax revenues in 2005 to 2013. Threshold was estimated at 6.85. So growth process of tax revenues are divided to two regimes: most of revenues that are more than threshold and amounts of growth rate that are lower than threshold.

Table 2 shows that by adding a pause to model, acetic scale will improve significantly. More pauses will increase acetic scale. So setar (m>2) is chosen as the optimal and final model.

Table 3. Estimation of STAR model

variable	coefficient	Standard deviation	Statistics t	Pr(> t)
Regimes 1				
C	0543/0	./244	2.22	** .02841
1Q	-.571620	./125922	-4.5395	***-.05e1/561
2Q	-.389947	0.0927113	-4.2059	***-.5e5.635
Regimes 2				
C	0.049054	0.142220	0.3442	0.738770
1Q	-.773963	0.283956	-.27956	***.00756661
2Q	-.901691	0.248564	-.36276	*** 0.0004506
Low regim proportion				84.7%
high regim proportion				15.24%
0.04566RESIDUED VCRIAC(E)		316- =ATC	226.2%=MAPE	.249%=t

According to results of table 3, $\mu_0 = /85$, all coefficients are meaningful in level 5%. The average in low regime is, $\mu_0 = /85$ and the average in high regime is $\mu_1 = 1/64$. So situation 1 is low situation and situation 2 is high situation. Auto regression coefficients are -0.571 and -3.389 for low threshold

that are meaningful and -0.773 and -0.901 for high threshold that is meaningful too. Also observations done in low regime are 84% & in high regime are 16% more than threshold.

Table 4 shows the amounts of growth rate of tax revenues in two estimated regimes. According to

estimated threshold, table 4 shows that we are in which tax regime in every month. According to table 4 and diagram 4, country tax system was in low regime before executing policy of value added tax. But after doing this policy and seeing what its effects on tax

revenues are, though indices of growth rate of tax revenues were in low regime, over time more of them go to high regime. Therefore results show relative successfulness of value added tax policy in increasing of total tax revenues.

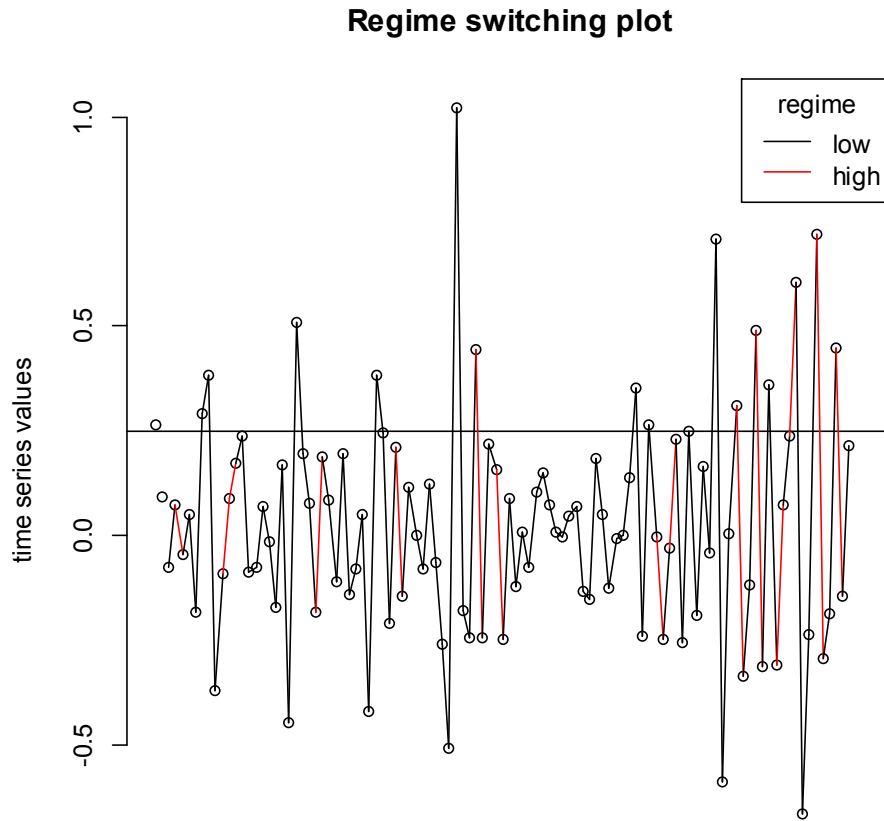


Diagram 4. Obtained auto regression coefficients for low and high threshold level

Studying autocorrelation functions (ACF) and slight autocorrelation functions (PACF) obtained from model estimation

One way of showing time correlation in a time series structure, is to define autocorrelation function. Relation between function (ACF) & delay K are shown as relation1:

$$\rho_k = \frac{\sum_{i=1}^{n-k} (z_i - \bar{z})(z_{i+k} - \bar{z})}{\sum_{i=1}^n (z_i - \bar{z})^2} \quad -1 \leq \rho_k \leq 1$$

P_k is the amount of time series ACF with delay K
 Z_i & Z_{i+k} are amounts of time series variables or data in time i and delay time k

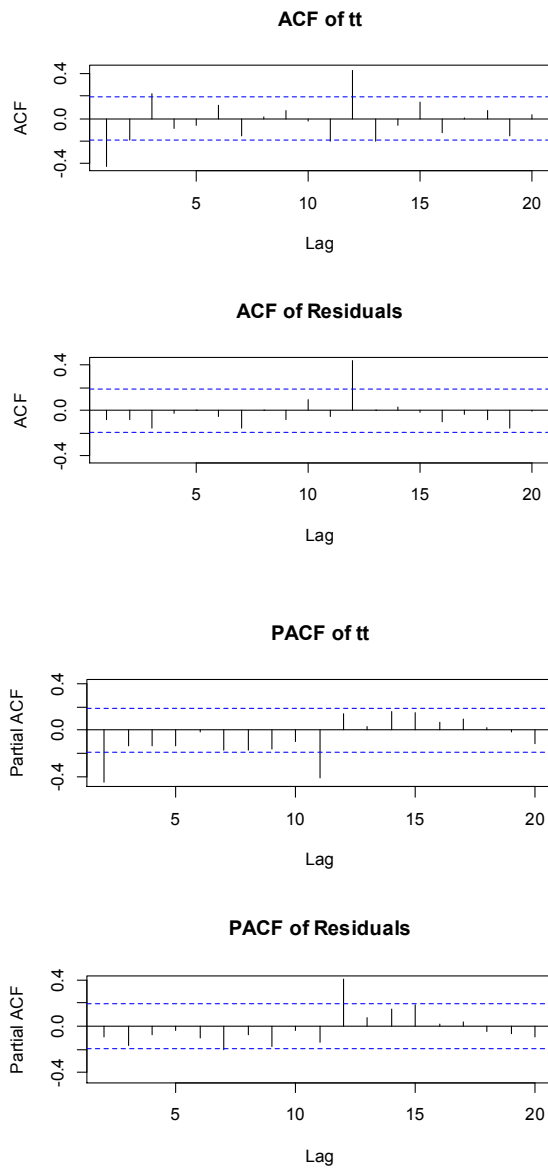
\bar{z} is the average of variables

Another method to show time correlation in a time series structure is to define slight autocorrelation function. If ϕ_k is time series PACF with delay k, its relation will be as relation 2:

$$\phi_k(k) = \frac{\rho_k - \sum_{i=1}^{k-1} \phi_i(k-1)\rho_{k-1}}{1 - \sum_{i=1}^{k-1} \phi_i(k-1)\rho_i}$$

ϕ_k is the amount of time series PACF with delay k.

In below diagrams, pacf and acf diagrams of investigated threshold model & total tax revenues are shown.



According to above diagrams we can say that investigated threshold model of tax revenues' growth rate in Yazd province have desire properties in stability.

Results

First hypothesis test

First hypothesis say that value added tax law will increase tax revenues of Yazd province. To investigate first hypothesis we refer to threshold & diagram auto regression pattern and diagrams 1 and 2 in section 4 to confirm or reject this hypothesis. The effect of value

added tax on tax revenues are investigated in table 4 by creating two high & low regimes. Numbers of regimes in table 4 show that high regimes' period have higher revenues and according to tests the average in high threshold regime is higher than the average in low threshold regime. So executing law of value added has a positive effect on tax revenues.

Conclusions

According to results of section 4, we can define findings as below:

Threshold 6.85 for periods of 2005-2013 of Yazd tax affairs administration base on the results of threshold & vector regression pattern shows that the average number in low regime is $\mu_0 = 0.85$ and this number in high regime is $\mu_1 = 1.64$. Obtained regression coefficient for low threshold level is -0.571 & -0.389 and for high threshold level is -.773 & -.901 and meaningful. According to table 4, 84% of observations are in low regime and 16% are in high regime. Although growth rate indices of tax revenues are in low regime, after executing law of value added tax most of observations were in high regimes. Therefore results show a relative successfulness of value added tax law to increase tax revenues.

Recommendations

Political recommendations

Here we propose some methods to reduce tax gap of Yazd province and to reach to predicted revenue in future.

1- Now, value added tax law is set up and ready to use. So tax officials are asked to introduce this tax to public.

2- Tax for companies has a big share in country's economy. So it is recommended to recognize tax evasion companies across province.

3- It is recommended to do annually predictions of tax revenues according to scientific prediction methods to avoid unprofessional recommendations in this case.

4- Value added tax evasions should be informed clearly so that all groups know it.

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