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# Investigating the Asymmetric Effects of Factors Affecting Tax Revenues in Iran using Quantile Regression Approach

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## EXTENDED ABSTRACT

### INTRODUCTION

The history of human development shows that tax is a necessity in the economy of countries because it is related to the birth, existence and development of government. Not only is tax an important revenue for a governments budget, but also it is related to economic growth, fair distribution and social stability. For this reason, tax and its determining factors play a prominent role in economic literature. In developing countries due to ever-growing needs of citizens and limited resources, government are facing challenges in fulfilling their developmental programs. This situation is exacerbated by, on the one hand, increasing costs of public services and on the other hand the pressure of public opinions. In such conditions it is highly required to optimize public funds through public policies. Tax revenue mobilization is a major concern in economic policy making in many countries. While some countries have experienced a considerable rise in the rate of tax to GDP, others show little or no increase in long periods of time. In developing countries, it is essential to increase tax revenues in order to provide funds for public investments and public services. In recent years, governments and international institutions have been more interested in

increasing tax capacities. this shows they have realized that tax capacity is the core of state building and development.

## **METHODOLOGY**

Deferent variables may differ from country to country due to the level of development, economic structure and the role natural resources play in government revenue. As tax behaviors highly tend to follow asymmetric and non-linear patters, it is of great significance for policy makers to investigate the existence of these effects in asymmetric patterns. In other words, in high levels of tax revenue, the effect and even the sign of effective variables on tax revenue may be different from that of low levels of tax revenue. These results show beneficial resolutions which help policy makers to determine the optimal tax revenues. Regarding this issue, the aim of this study is to analyze the asymmetric effects of influential factors on tax revenue during 1360-1398 with quantile regression approach.

In this article, quantile regression was used to analyze the model. One of the mast important advantages of this method is the deep and thorough insight into response variables. In other words, quantile approach offers a model which makes it possible for variables that influence the dependent variable to interfere not only in the data center of gravity, but also in all distribution sections including its initial and final sequences.

Since quantile regression is capable of creating models for any kind of quantile, it is more resistant to outlier data and heterogeneity than other methods. Prior to model estimation, the volume of underground economy was estimated through , MIMIC so that the related data enters the research model. That was because underground economy is a hidden variable which is not registered in official statistics and there is not any time series about it. Structural equation model shows the relationship between hidden variables and observed variables as well as observed causes which are called MIMIC. export can be useful.

## **FINDINGS**

The results of model estimation show that per capita income has a positive and significant effect on tax revenues. As the model is logarithmic (except for the variable of inflation rate), the effect of coefficients is the concept of tax revenue elasticity. The results of different quantiles include important tips. In low quantiles of tax revenues per capita income or its elasticity on tax revenue has more effect on tax revenue than in high quantiles. In other words, when

the government is earning low levels of tax, increasing per capita income has more effect on tax revenues. These results show that in a period when tax revenues decline, governments efforts to improve economic situation and business increase employment, expand production and increase tax revenues. Similar results have been obtained for added value of industry sector in low quantiles of tax revenue, the effect of added value of industry sector on tax revenues is more than that in high quantiles. Increasing added value of industry sector through expanding industrial products increases the exportation of industrial goods and it consequently increases tax revenues. On the other hand, added value of service sector has insignificant effect on high levels of tax revenues and only in low levels of tax revenues its effects are significant in 90% of confidence level. Furthermore, the effect of added value of agriculture sector is insignificant on tax revenue. Foreign trade has a positive and significant effect on tax revenue. Foreign trade growth and imposing tax on import and export increase tax revenue. This effect is more in low levels of tax revenue. Trade is one of the most important sectors that increases tax revenue. By imposing tax on exportation and importation of different goods governments earn huge amount of tax. Oil revenue has a negative effect on tax revenues. The effect of underground economy on revenues is also negative and significant. This effect is strengthened particularly in case of high levels of tax revenue. Inflation rate has significant effects on tax revenues only in high quantiles of tax revenue. Finally, the effect of government expenses on tax revenues is also positive and significant. This effect is stronger in low levels of tax revenues. Increasing government expenses in different sectors can have positive effects on production volume as well as increasing employment. Increasing government expenses leads to increasing tax revenue through income tax on production and business. Following the process of quantile method, in the next stage after estimating the effects, they must be investigated to be determined as symmetric or asymmetric for this purpose, the test suggested by Newey and Powel (1987) was used. The result of this test showed that the effects of GDP per-capita, added value of industry sector, foreign exchange rate and oil revenues are asymmetric. Other variable in this research had symmetric effects on tax revenues.

## CONCLUSION

Due to considerable tax revenues governments earn from foreign trade (Export and Import), they can concentrate on open-trade policies because

optimal open trade can have a positive effect on tax revenue. It also can reduce underground economy. Not only do such measures help the country to called tax through import and export, but also, they contribute to economic growth and improving infrastructures. Consequently, tax revenue would increase. On the other hand, the government should enhance economic reconstruction in order to archive industrialization, renovation and increasing the effect on GDP and consequently earn more tax revenue. Moreover, technology transfer, increasing management capabilities through importing modern machinery, advanced technology and achieving management skills of foreign

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