WORKFORCE IMPACT ANALYSIS ON THE PERFORMANCE OF THE TAX ADMINISTRATION AND DETERMINING THE INFLUENCIAL ELEMENTS

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ABSTRACT: *According to the definition, efficiency is the ratio of outputs of an organization to its inputs for which there are parametric and non-parametric ways of calculation. In non-parametric method which forms the base of calculations in this research, efficiency is evaluated through a series of mathematical optimizations. In this research tax organization each province is considered as a decision maker unit which contains several inputs and outputs. In order to compare the efficiency of different provinces of the country, they are divided on the bases of the stage of development. Efficiency of tax organizations of provinces is measured by using data Envelopment Analysis procedure (DEA), and the results show that in1391, there has been an Average efficiency of 68% for developed provinces and 82% for less developed provinces. Regarding the numbers related to the efficiency of provinces, we consider the difference between efficiency of provinces and efficiency of 100%, as their short coming in tax capacity achievement. In another words, efficiency of provinces show they are from legal potential capacity of tax collection.*

Keywords: Technical efficiency, Skilled labour, tax administration, DEA method, Mismatch

INTRODUCTION

Efficiency is an issue that both in economical and in the management aspect, particular in the macro management, plays a vital role. But a quick look at the structure of decision-making and the economy process during the past years, have shown that the most important economic indicator has been forgotten. Word "indicator", in the concept of efficiency, done in order to which reflects the results of policy-making and also social conditions and developments, and in the aspect of comparison, show the context and base of economic activity in a society well.

If the comparison has been done whether in the different regions within countries or over time, in both cases have the many lessons and tips for researchers and policy makers. Since our homeland, Iran, accounted as a developing country, is the proper utilization of resources also plays a vital role in the rapid and substantial moving to development.

Proper use of resources moved us toward the concept of efficiency in the use of production sources. Among the production factors, workforce factor placed in the new theoretical principles of growth and economic development. Because is assumed that workforce factor be dynamic and innovative. On the contrary, the capital of which is solid and immoveable.

In studies have been done in the field of efficiency in abroad, the concept of efficiency in the use of the work force is one of the concepts that take into consideration. The present research intends to study and examine the efficiency in order to use of workforce especially in tax administration in Iran.

Determinations of the factors that cause to improve efficiency in the use of expert workforce or human capital are also examined in this study. According to the youth of studies in the field of efficiency and variety of methods, can be used different methods to measure performance. The method used in this research is data envelopment analysis that can be used it to determine the technical efficiency and optimal level of production inputs. This issue is examined in detail in the lines if this study.

PROBLEM STATEMENT OF THE RESEARCH

Expansion of the government's commitment in order to achieve goals such as economic growth, price stability, increased employment and equitable distribution of income, government spending has been faced with rising that persuade government to finance in different ways. In this regard tax as one of the main ways of financing has always attracted the attention of governments. Taxation is the best means by which governments can provide three target such as funding, allocation of economic resources and income redistribution.

Over the past few decades, proceed from the sale of crude oil is a major part of government revenue; taxes also provided a percentage of government expenditure that the amount of the portion as one of the economic issues are moot. Unsuitable combination of government revenues from one hand and high dependence of government economy and revenues on oil export on the other hand refers to the lack of comprehensive and efficient tax system in the country. Assessment of a country's tax system can be achieved through measures such as the ratio of taxes to gross domestic product and the ratio of tax to the government total revenues. In fact, these ratios represent the performance of the tax system and the health budget is a country.

Studies have shown that the ratio of receivable taxes to GDP has been about 6 percent in the years 1974 to 2005 and the ratio of tax to the total revenues has been an average of 30 percent in this period. In 20041, the ratio of tax to government total revenues for Australia, United States, Denmark and England have been 91, 67, 84 and 74 percent, respectively as well as the tax-to-GDP ratio in 20032(3- for these countries equal to 6 / 31,6 / 35, 3/48 and 6/35 percent, respectively. From neighboring countries of Iran, Turkey can be noted that the tax ratio is 32.8 in 2003 and the revenues of tax ratio to the total revenues of the

1. *http://devdata.word bank.*
2. *http://www. Oecdwash.org.*

country equivalent to 77 percent in 2004. However, the ratio of tax to government total revenue equal to 33 percent in 2004 and tax-to-GDP ratio in 2003, equal to 6 percent.

Low of these ratios in Iran compare to other countries and necessary to achieve the 20 years vision in order to cover the running costs through tax, is clearer to study and examine the tax system and its strengths and weaknesses. The investigations show that, on average, about 35 percent of the current expenses of government taxes have been covered, during the years 1974 to 2006 [1-4]. Considering the above points, study the impact of factor on increase in tax revenues, regarding to the gap between the tax potential capacities and rate of country's performance can help to create an appropriate ground in order to increase the amount of received taxes and the rise of the tax system.

So, the purpose of this study is to improve the performance of the tax system's approach in Iran, to determining the factors effect on tax performance in different provinces of the country. And according to the crucial role of human resources in the development and fertility of organizations clear to everybody and since the productivity improvement depends on the capabilities of individual employees, so the understanding of the factors affecting the productivity of human resources is important, and because of that tax organization of the country where was established more than a few years, requires to recognize these factors, researcher decided to study the impact of human resources and specialized skills in tax and detect affecting factors on this issue, through this set the require appropriateness between available tax legal capacity in providences and their performance.

REVIEW OF THE LITERATURE

At the beginning of discussion, we should note that the efficiency of the workforce has not been measured and so in this section we discuss only the experimental studies conducted in other countries. In an article studied "the efficiency in the use of workforce in Indian and Pakistani commercial banks". The results show that, on average, banks, in the Indian subcontinent, can reduce the use of workforce to 34.7 percent by holding the efficiency of the workforce stability. It is worth to mention, subcontinent has experienced increases of the use of workforce efficiency over 19 years that shown the implemented policies in the 90s in order to help banks to reduce their workforce, is neutral in the most pessimistic state and logically have been successful in the sense of optimistic.

Also, the performance levels are inversely varies with the size of the banks. In addition, it was found that the number of branches owned by a bank has the greatest effect on workforce demand. They are likely banks that have governmental ownership in the past and thus have problems when faced with the challenges of the new competitive. Das et al [5] in an article entitled efficiency in the use of workforce in Indian banking: An Analysis of the branches use the data envelopment analysis to measure the efficiency of the workforce in the branches of State Bank of several thousand branches in all over India.

The findings of the research show that even in each region, there is a considerable amount of inefficiency in the use of work force and inefficient branches can create significant savings in personnel costs by following the other branches in the same city as a pattern that researchers known it as the purpose that regional management shall be determined for branches. Also, comparison in India, show the inefficiency is more than this and emphasized the harmful effects of poor working culture in which the branch is located. The findings suggest that policies, operating procedures and financial incentives that cannot be implemented at the corporate level to completely neutralize the effect of local work.

Battese *et al* [6] in an article entitled "Efficiency in the use of workforce in the Swedish banking industry: a stochastic frontier approach" analyze to remove the restriction of the banking industry in Sweden, in the mid-1980s and the subsequent financial crisis contributed to the growth of efficiency and productivity in the industry.

The results show that the average of inefficiency is about 12 percent. Also, the results indicate that the primary effect of deregulation on the performance has been positive. But the dramatic increase in the real interest rate for households and companies has led to major changes in the portfolio of loans extended repayment of old and new loans tend to be low. Since banks had not planned for this loss of revenue, were not able to adjust their employees about reduction of revenue ratio. As a result of the financial crisis is negative after the deregulation of the workforce efficiency.

RESEARCH HYPOTHESIS

Based on discussions, the research hypotheses were formulated as follows:

The first hypothesis:

There is a significant relationship between workforce efficiency and effectiveness of tax administration. (Efficiency of tax administration and tax affairs in different provinces and provincial taxes are lower than the potential tax)

The second hypothesis:

There is a significant relationship between the expert of workforce and the efficiency of tax administration.

RESEARCH METHODOLOGY

Present research in the view of target is applied and the type of research is descriptive. Also, in order to collect information and research data, including workforce of tax administration, added value of industry and services sectors in province, the ongoing costs of tax administration and the number of employees in provinces and etc. are library and documentary and has been provided from statistical sources and annals of the accounts of the various provinces in the Statistical Center of Iran and the tax administration of the country. DEAP is the software used in this study.

VARIABLES OF THE RESEARCH MODEL

According to that the main activity of the provincial tax administration is to receive the bases of taxation, accordance with the available rules and regulations,

introduce the input (as the tax basis) and the output variables.

THE INPUT VARIABLES

1. The added value of industry and services sectors

Since agriculture is exempted from tax under the act, the added value of industry and services sectors consider as the most important tax base in each province in the model and in other word a substitute for individual income and corporate profits is the non-agricultural sector. Accordingly, it is assumed that, in general, each of provinces which have a higher income should pay more taxes.

2. The ongoing costs of the tax administration

This variable shows the ongoing costs of organization in order to receive tax and it's expected that increase in this amount cause to increase in tax receipts. Because ongoing cost relatively indicate the volume of the current expenses for the receiver of taxes.

3. The number of personnel in each province tax organization

The number of people presented in the organization in order to receive tax, demonstrate the ability to collect more taxes. Awareness and knowledge level in this regard is very important and therefore the number of personnel has been adjusted on the basis of their education.

4. Number of province employees

This variable is considered as a factor that is expected to enhance the ability to receive tax for province tax administration, in other words, the high level of people employed in the economic situation is getting better and therefore increases taxes payment.

OUTPUTS VARIABLES

Generally, outputs model include all types of receivable taxes in province that are divided into four groups:

1. Corporate Tax 2. Income tax 3. Wealth tax 4. Goods and services tax

Import tax is one of the major items of tax recourses, but since the charge of collection is customs, it's not included in the scope of the tax administration, has not been mentioned in the model. Also, to check the efficiency of the administration of the provinces, due to their heterogeneous in terms of their degree of development and operation of tax exemptions, provinces are divided into different groups, in order to done a more accurate and precise comparison of the performance of provinces. And therefore, the provinces that have similar requirements in terms of level of development and the same conditions to apply tax exemptions be compared with each other. Accordingly, the provinces are classified on the basis of partnership taxation. Classification of provinces has been done base on participation in the payment of taxes in accordance with the recommendation of tax administration, then based on this, provinces are divided into two groups, provinces that share are more than 0/05 percent and provinces that share are less tax of 0/05 percent of the total tax of the country in this year.

EFFICIENCY MEASURING

Major part of the research statistical data, including workforce of tax administration, added value of industry and services sectors, ongoing costs of tax administration and the number of employees in the provinces and etc., is a library of documentary and statistical sources and has been provided from the annals of the production accounts of different provinces in Iran Statistical Center and the tax administration of the country.

Also, all the calculations have been done only for a time period and it is in 2012. The cross-sectional nature of this study is the DEA method to cross checks the unit's efficiency. The year of 2012 is chosen because it is the latest statistics available from the proceeds and the number of employees in the offices and thus this year statistics are more accurate.

MEASUREMENT OF EFFICIENCY IN TERMS OF THE DEGREE OF DEVELOPMENT

A) Developed provinces

In 2012, in the group developed provinces excluding Tehran, it is consider that 2 province from the 14 provinces have 100% relative efficiency that are Markazi and Bushehr. Also, the efficiency of the tax administration of the provinces in this group is obtained between 43.6 to 100%. Low efficiency is from the Eastern Azerbaijan province.

B) Less developed provinces

In 2012, in the group of less developed province, considering that 3 province of the 16 provinces have 100% relative performance that are northern Khorasan, Zanjan and Semnan. Also, extend change of the efficiency of the provincial tax administration in the Group is obtained from 54.8% to 100%. The least efficiency is obtained from Golestan province.

The average results of the measurement of technical efficiency show the lack of technical efficiency and indicate that proper utilization of production factors does not take place in many provinces and can be improved earnings by the proper use of inputs. Also, by comparing the technical efficiency of administration can be found that industrial provinces and province with oil field are presented as a fully efficient province.

The oil-rich and industrial provinces have the high levels of efficiency - and sometimes one - which is expected; but disadvantaged and non-industrial provinces have low levels of efficiency that have been justified due to their low value and low technology manufacturing.

As mentioned, DEA method identifies the optimal values of the outputs and inputs.

Mean efficiency in the use of skilled workforce in the country shows that there is inefficiency in the use of skilled workforce in the country compare to desirable situation is very meditative track and indicates the need to adopt appropriate measures to improve the situation of human capital.

Table l- measurement of technical efficiency and effectiveness in the use of skilled workforce to the breakdown of the tax administration in 2002

Row	Province	Oriented inputs and constant returns to scale	Outcome-oriented and constant returns to scale
1	Eastern Azerbaijan	0.564	0.564
2	Western Azerbaijan	0.436	0.436
3	Ardabil	0.424	0.424
4	Isfahan	0.841	0.841
5	Alborz	0.533	0.533
6	Ilam	0.197	0.197
7	Boshahr	1	1
8	Chahar Mahal and Bakhtiari	0.389	0.389
9	Southern Khorasan	0.432	0.432
10	Khorasan Razavi	0.476	0.476
11	Northern Khorasan	0.667	0.667
12	Khozestan	0.596	0.596
13	Zanjan	0.707	0.707
14	Semnan	0.564	0.564
15	Sistan and Baluchestan	0.421	0.421
16	Fars	0.557	0.557
17	Qazvin	0.749	0.749
18	Qum	0.444	0.444
19	Kurdistan	0.479	0.479
20	Kerman	0.907	0.907
21	Kermanshah	0.338	0.338
22	Kohgiluyeh Boyerahmad	0.203	0.203
23	Golestan	0.37	0.37
24	Guilan	0.463	0.463
25	Lorestan	0.407	0.407
26	Mazandaran	0.465	0.465
27	Markazi	1	1
28	Hormozgan	0.909	0.909
29	Hamedan	0.374	0.374
30	Yazd	0.661	0.661

RANKING OF EFFICIENT UNITS

After determining the amount of efficiency about province, as observed, some provinces allocated one in efficiency (100%). However, the question is that in which of these provinces are more efficient. Different methods of data envelopment analysis to determine the rating agencies have been effective, in this research the number of functional units in a unit of reference for the construction of the unit is used in determining the performance of other units.

Also, in general, in classification of developed provinces where pay more than 0.05% of the total tax of country, among the provinces that efficiency rating is one, including Bushehr and and Markazi in priority at the mentioned categories, respectively. In the category of less developed provinces and provinces pay less than 0.05% of the total tax of country, among the provinces efficiency have also been one, including northern Khorasan, Semnan and Zanjan are in priority respectively. This means that in each of the scenarios in order to determine the effectiveness of each of the provinces mentioned above that seen in the prioritization of their efficiency rating is true.

INVESTIGATE THE CONDITION OF THE WORKFORCE PRODUCTIVITY OF THE TAX ADMINISTRATION IN 2012

In this section, from the amount of received taxes in the recent years [7-9], the amount of workforce productivity is determined. Therefore, the income tax divided on the total number of employees in the tax administration, the results can be seen in the table above. As can be seen in the table 4

Table 3: Results of measuring the performance of excluding Tehran Fnyadarat separate offices in 91 years "Less developed"

Row	Province	Oriented inputs and constant returns to scale
1	Western Azarbayjan	0.826
2	Ardabil	0.6
3	Ilam	0.697
4	Chaharmahalobakhtiari	0.767
5	Southern Khorasan	0.611
6	Northern Khorasan	1
7	Zanjan	1
8	Semnan	1
9	Sistan and balochestan	0.997
10	Qum	0.968
11	Kuedestan	0.968
12	Kermanshah	0.885
13	Kohkolie boyerahnad	0.863
14	Golestan	0.548
15	Lorestan	0.767
16	Hamedan	0.738

Table2: technical efficiency measure results excluding Tehran to separate administration offices in 91 years' development

Row	Province	Oriented inputs and constant returns to scale
1	Eastern azarbayjan	0.436
2	Isfahan	0.841
3	Alborz	0.533
4	Boshehr	1
5	Khorasan Razavi	0.476
6	Khozestan	0.596
7	Fars	0.557
8	Qazvin	0.749
9	Keman	0.907
10	Guilan	0.463
11	Mazandaran	0.465
12	Markazi	1
13	Hormozgan	0.909
14	Yazd	0.661

Table4. The labor productivity in the Tax administration in 2002

Province	Labor productivity (millions of Ria)	Province	Labor productivity (millions of Rial)
Eastern Azerbaijan	7605.359375	Qum	7337.084444
Western Azerbaijan	4958.471204	Kurdistan	8085.137255
Ardabil	4570.529183	Kerman	15308.43
Isfahan	15883.14826	Kermanshah	5885.243697
Alborz	10354.40873	Kohgiluyeh Boyerahmad	7179.184874
Ilam	5555.03937	Golestan	4225.980831
Boshahr	39237.80545	Guilan	4814.247863
Chahar Mahal and Bakhtiari	4746.794444	Lorestan	5411.730627
Southern Khorasan	5524.913043	Mazandaran	5414.801136
Khorasan Razavi	8225.851494	Markazi	22612.38788
Northern Khorasan	7566.434783	Hormozgan	24885.46087
Khozestan	18285.9363	Hamedan	5216.893939
Zanjan	8327.280632	Yazd	12930.76282
Semnan	6762.144487	Tehran city	43688.16142
Sistan and Baluchestan	7259.762712	Tehran province	13111.29439
Fars	10849.59016	Country	17985.81064
Qazvin	13023.27338		

above that the average of workforce productivity is about 17985.81064 million Rial in 2012 that tax administration in Tehran, Bushehr, Hormozgan, Markazi have the highest levels of workforce productivity are one reason is that there is oil and gas and petrochemical industries in that provinces. The lowest of efficiency belong to Golestan province, which is consistent with the lowest use of expert workforce.

THE CONCLUSIONS AND RECOMMENDATIONS OF THE RESEARCH

In this study, was presented an overall picture of the taxation performance in the country and provinces in the field of tax receiving. The present study was conducted in conjunction with the performance was presented and discussed. These studies have been conducted mainly based on econometric methods.

Notable point in these studies is how to calculate efficiency. The method used in this study is data envelopment analysis (DEA). The method of non-parametric methods is evaluating efficiency by using a series of mathematical optimization of effectiveness in case study. Study was conducted to determine the effectiveness of provincial tax administration and determine their tax capacity, indicating his reference to the following:

This study evaluated the effectiveness of the provinces according to their heterogeneous, in a scenario based on the development or "degree of development" were examined with regard to the facts and expert opinions, classified according to the degree of development scenario seems reasonable . In addition to more accurate, determine the effectiveness of the provinces was conducted except Tehran province without is expected to achieve better results regard to the particular circumstances of this province.

1 .On average, during the year 2012, based on the degree of development, the relative efficiency average of developed provinces is 68% and relative efficiency of less developed provinces is 82%, respectively.

2. On average, with considering the present scenario, during this year, tax effort of the country is about 60 percent.

3. Less developed provinces or provinces paid less than 0/05 percent of all received taxes, have done better in their group, according to the resources and facilities they have in comparison with the developed provinces and facilities available to this province.

4. In most provinces, the number related to relative efficiency of different relative tax effort is less than one that refers to the gap between received taxes and legal potential tax in the province, and also confirms their hypotheses.

5. The data obtained can be used for each province could make policy about the recruitment and promotion efficient forces in organizational position of, as well as give the authority to managers to the elimination of shortcomings.

The results of the research show that the relative inefficacy of the provinces' tax administration of the country. So, the following suggestions are offered for improving their efficiency.

1) According to that the provinces have higher received tax compared to other inefficient provinces with similar legal requirements and inputs received; tax managers and authorities of inefficient provinces increase the efforts in order to raise funds for the province.

2). Reduction of inputs has been suggested. (Changeable inputs at the model included the organization and number of personnel) according to received taxes or an increase in received tax according to the inputs availability, introduced in most provinces.

3). It is recommended that provide the provinces efficiency every year and encourage and investigate the problems of inefficient units and the necessary action to be taken.

4). Reduction of inputs is recommended (changeable input in the model, including the costs and number of employees) due to received taxes and increase in receivable tax, according to the available inputs, in most provinces that have been introduced inefficient.

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