

A comparison between the efficiency of manufacturing factors on the governmental (Quasi-governmental) and private companies in the stock exchange's of Iran

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Abstract. This study compares the productivity of production factors between the governmental (Quasi-governmental) and private companies stock exchange in Iran, respectively. This study in its aim is application-base and in its method, is a survey of scientific-comparison which compares the governmental (Quasi-governmental) and private companies. This study compared the productivity of production factors in the timeframe from 2001 to 2009. In order to analyze the research hypotheses, using the paired T-test and analysis of variance, Pearson's linear correlation coefficient was used. The results showed the efficiency of production factors between sectors in the governmental (Quasi-governmental) and private companies, there are significant differences.

Keywords: productivity, efficiency factors of production, governmental (Quasi-governmental) and private companies

1. Introduction

Productivity measurement is essential for any organization this is so important that with establishment and implementation of a productivity measurement system to the strengths and weaknesses of a production organization. Therefore, by using and comparison of productivity indicators the competitiveness of various industrial sectors to develop their resources and factors of production realized. If possible, the indicators can be compared with competitive products will be decisive. Thus, the performance of the company can be assess in different ways. One from company's productivity and the other by the company assessment according to the annual accounting reports on the company's financial information is extracted and then evaluated.(kitaeva,2003,1)Measuring the efficiency and effectiveness can be defined in terms of technical performance, technical efficiency in the course of the project is to convert input to output and effectiveness of the strategic goals of the grade is based on output.(Rouse, Putterill, Ryan ,1997,135)According to Article4of the Public Audit Forum a public company's a certain organizational unit which is created by law allowance or to the competent court of law or by national or confiscated and is known as a public company and over50%of its capital is owned by the government. Every business that is created through investment in public companies as long as this condition, is considered to be a public company.(general calculations' rule of Iran,1987 24)

2. Research Background

Yilmazkuday(2009) concluded that:1-Public sector productivity growth rate was higher than in the private sector and both the productivity and total productivity growth was up and down. Considering the timing of the business cycle takes the following higher productivity growth in public sector than the private sector and total productivity growth in both has the high and low productivity.(Yilmazkuday,2009,21-40)

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Fernandes(2008) concluded that by controlling the position of the industry and annual fixed effects found that the company's size and total factor productivity (TFP) are interdependent in reverse while the old company and total factor productivity (TFP) is an inverse U-shape. The findings also showed that factors such as problems of finance and administration system are severe penalties and lead to decrease in total factor productivity (TFP). (Fernandes, 2008, 1725)

Halkos and Tzeremes(2007)concluded that smaller companies into the production process is organized differently than larger companies. Initially expected due to the overhead costs we are seeing a positive impact on productivity levels However, when a company grows beyond a certain size, the scale of the savings will most likely impact, so the negative impact on productivity levels.(Halkos &Tzeremes,2007,713-731)

Margono and Subhash(2006) concluded that productivity in manufacturing (factory) in Indonesia, decreased with rates of 2/73percent, 0/26percent and 0/5percent, respectively, in the food industry, textile and metal. While the chemical sector in our country grew0/5percent in the period has been reviewed. (Margono&Subhash, 2006, 979-995)

Haltiwanger et.al, (1999) concluded that the number of workers, age, and human capital affects the productivity.(Haltiwanger,1999,94-98)

Idson and Walter (1999), calculated and compared the labour productivity in small and large industries, fabricated metals, machinery, electronics, transport equipment and tools by using production function and deduced that industrial labour force due to the use of technology and advanced equipment and also advanced organization is more productive than small-scale industries.(Idson Toddl & Walter, 1999, 104-108)

Pilat (1995) concluded that productivity in some of South Korean industries such as leather, metal, and machinery is comparable to productivity in European industries, the total productivity in south Korean industries in 1987 is equal to 26 percent of American industries. In his view, factors such as the use of capital, savings resulting from industrial-scale production and workforce education, the most important factors affecting the productivity of industries in South Korea is America.(pilat,1995,123-144)

Seshaiah and Reddy(1993) conclude that the total factor productivity except cotton textile industry, in all industries have a downside and total factor productivity index for cotton textiles industry has increased during the period, with mild fluctuations.(Seshaiah & Reddy,1993,100-108)

In addition Bonelli(1992) studied the relationship between total productivity and production growth in Brazilian industries and concluded that there is a direct relationship between growth in industrial output and productivity growth in this country. The study also showed that about 40 percent of the growth in Brazilian industry was about increase and expand in export section.(Bonelli,1992,85-109)

3. Research Method

The study in its purpose is application and its methods, description and post- event by use of past data. The research was conducted from 2001 to 2009. Statistical Society of this reasearch are industries in the corresponding form of governmental (Quasi-governmental)companies and private companies, so we can compare Total factors productivity of production. Thus, the names of the five industries in the Table 1 are the statistical community which are totally 62 companies. That of the 43 governmental companies (Quasi-governmental) and 19 are private companies.

Table 1- The statistics society in this study

Row	Industry Type	Public Companies(Quasi-governmental)	Private Companies
1	Types of food products and beverages	9	3
2	Materials and Chemical Products	11	3
3	Materials and pharmaceutical products	14	4
4	Other non-metallic mineral products	5	4
5	Machinery and equipment	4	5
6	Sum	43	19

4. Research Findings

Analysis of research hypotheses: The main hypothesis: the productivity of production factors (labour, capital and Intermediate Goods) on governmental (Quasi-governmental) and private companies has significantly difference. We divided this hypothesis to four section, which in each section, the productivity of each of production factors is examine between governmental (Quasi-governmental) and private companies. In section fourth the main hypothesis is examined between the public and private companies which are as follows:

4.1. The first sub-hypothesis - the productivity of production factors (labour) in governmental (Quasi-governmental) and private companies has a significant difference.

H0: Productivity of production factors (Labour) in governmental (Quasi-governmental) and private companies has no significant difference.

H1: Productivity of production factors (Labour) in governmental (Quasi-governmental) and private companies has significant difference.

Paired Samples Statistics (1)

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 private.L	4.9431	171	4.30042	.32886
governmental(quasi-governmental).L	.2169	171	.17488	.01337

Paired Samples Correlations (2)

	N	Correlation	Sig.
Pair 1 private.L & governmental(quasi-governmental).L	171	.134	.081

Paired Samples Test (3)

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 private.L - governmental(quasi-governmental).L	4.72624	4.28049	.32734	4.08007	5.37241	14.438	170	.000

The previous tables show the results of paired T-test and ANOVA tables which is a comparison between the productivity of labour inputs among private companies and governmental (Quasi-governmental) companies in the years 2001 to 2009 in the 95 percent confidence level or error, 0/05's.

Accordingly, the first table shows the average labour productivity in the two private companies and governmental (Quasi-governmental) companies. Number of statistical samples of data in column is N, the next column is a standard deviation and the labour productivity deviation in the two groups governmental (Quasi-governmental) and private companies. Table II shows the linear correlation coefficient between Pierson labour productivity in the private and governmental(quasi-governmental) companies in a significant (100/08=92) the percentage which is equal to 0/13. In other words, the significance level of 92 percent in labour productivity between the private and governmental(Quasi-governmental) companies and the direct correlation is weak. There are significant differences between the two groups. In Table III, column Mean shows the differences in average productivity of governmental (Quasi-governmental) and private companies, the upper and lower column show the Lower and Upper bound of average difference between the two groups, the next column denotes statistic T, the degree of freedom (df), and significant levels of the sig. This test was carried out at 95 percent confidences. According to this test because the amount of computing T (t=14/43) in the above table is larger than T (5/17), indicates that H1 is accepted or assume that H0 is rejected. In other words, with 0/95 confidences, labour productivity between the private and governmental (Quasi-governmental) companies there are significant differences.

4.2. The second sub-hypothesis-the productivity of production factors(capital) in governmental (Quasi-governmental) and private companies has a significant difference.

H0: Productivity of factors of production (Capital) in governmental (Quasi-governmental) and private companies, has no significant difference.

H1: Productivity of factors of production (Capital) in governmental (Quasi-governmental) and private companies has a significant difference.

Paired Samples Statistics (1)

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 private.k	.6086	171	.57322	.04384
governmental(quasi-governmental).k	.3431	171	.28214	.02158

Paired Samples Correlations (2)

	N	Correlation	Sig.
Pair 1 private.k & governmental(quasi-governmental).k	171	-.169	.027

Paired Samples Test (3)

	Paired Differences	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
					Pair 1 private.k governmental(quasi-governmental).k	.26545			

The previous tables show the results of paired T-test and ANOVA tables which is a comparison between the productivity of capital inputs among private companies and governmental(Quasi-governmental) companies in the years 2001 to 2009 in the 95 percent confidence level or error, 0/05's. Accordingly, Table 1 states the average of capital productivity among the two private companies and governmental(Quasi-governmental) companies. Number of statistical samples of data in column is N, the next column is a standard deviation and the labour productivity deviation in the two groups [Governmental (Quasi-governmental) and private companies]. Table II shows the linear correlation coefficient between Pierson productivity of capital in private companies and governmental (Quasi-governmental) in a significant level of (100-0/02=98) and the percentage is equal to -0/16. In other words, there exists a significant level of capital productivity by 98 percent between the governmental (Quasi-governmental) and private companies and a weak inverse correlation. There are significant differences between the two groups. In Table III, column Mean shows the differences in average productivity of governmental (Quasi-governmental) and private companies, the upper and lower column show the Lower and Upper bound of average difference between the two groups, the next column denotes statistic T, the degree of freedom (df), and significant levels of the sig. This test was carried out at 95 percent confidences. According to this test because the amount of computing T (t=15/10) in the above table is larger than T (5/17), indicates that H1 is accepted or assume that H0 is rejected. In other words, with 0/95 confidence, capital productivity between the private and governmental (Quasi-governmental) companies there are significant differences.

4.3. The third sub-hypothesis - the productivity of production factors (Intermediate Goods) on governmental (Quasi-governmental) and private companies has a significant difference.

H0: Productivity of factors of production (Intermediate Goods) on governmental (Quasi-governmental) and private companies, has no significant difference.

H1: Productivity of factors of production (Intermediate Goods) on governmental (Quasi-governmental) and private companies has a significant difference.

Paired Samples Statistics (1)

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 private.Z	.5127	171	.21067	.01611
governmental(quasi-governmental).Z	10.7968	171	9.39303	.71830

Paired Samples Correlations (2)

	N	Correlation	Sig.
Pair 1 private.Z & governmental(quasi-governmental).Z	171	.345	.01

Paired Samples Test (3)

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 private.Z-governmental(quasi-governmental).Z	-10.2840	9.32249	.71291	-11.69139	-8.87680	-14.426	170	.000

The previous tables show the results of paired T-test and ANOVA tables which is a comparison between the productivity of intermediate goods inputs among private companies and governmental (Quasi-governmental) companies in the years 2001 to 2009 in the 95 percent confidence level or error, 0/05's.

Accordingly, Table 1 states the average of intermediate goods productivity among the two private companies and governmental (Quasi-governmental) companies. Number of statistical samples of data in column is N, the next column is a standard deviation and the labour productivity deviation in the two groups [governmental (Quasi-governmental) and private companies]. Table II shows the linear correlation coefficient between Pearson productivity of intermediate goods in private companies and governmental (Quasi-governmental) in a significant level of $(100 - 0/01 = 99)$ and the percentage is equal to 0/35. In other words, there exists a significant level of intermediate goods productivity by 99 percent between the governmental (Quasi-governmental) and private companies and a weak inverse correlation. There are significant differences between the two groups. In Table III, column Mean shows the differences in average productivity of governmental (Quasi-governmental) and private companies, the upper and lower column show the Lower and Upper bound of average difference between the two groups, the next column denotes statistics T, the degree of freedom (df), and significant levels of the sig. This test was carried out at 95 percent confidences. According to this test because the amount of computing T ($t = 14/42$) in the above table is larger than T (5/17), indicates that H1 is accepted or assume that H0 is rejected. In other words, with 0/95 confidences, intermediate goods productivity between the private and governmental (Quasi-governmental) companies there are significant differences.

4.4. The main hypothesis of test - the productivity of production factors (labour, capital and intermediate goods) in private and governmental (Quasi-governmental) companies has a significant difference.

H0: Productivity of factors of production (Labour, Capital and Intermediate Goods) on private and governmental (Quasi-governmental) companies has not significant difference.

H1: Productivity of factors of production (Labour, Capital and Intermediate Goods) on governmental (Quasi-governmental) and private companies has a significant difference.

Paired Samples Statistics(1)

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 KLZ.khososi	6.0641	171	4.69538	.35906
KLZ.dolati	11.3570	171	9.40973	.71958

Paired Samples Correlations(2)

	N	Correlation	Sig.
Pair 1 KLZ.khososi & KLZ.dolati	171	.11	.000

Paired Samples Test(3)

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 KLZ.khososi - KLZ.dolati	-5.2992	4.80118	.36716	-6.01769	-4.56815	-14.946	170	.000

The previous tables show the results of paired T-test and ANOVA tables which is a comparison between the productivity of capital, labour and intermediate goods inputs among private companies and governmental (Quasi-governmental) companies in the years 2001 to 2009 in the 95 percent confidence level or error, 0/05's. Accordingly, Table 1 states the average of inputs productivity among the two private companies and

governmental(Quasi-governmental) companies. Number of statistical samples of data in column is N, the next column is a standard deviation and the labour productivity deviation in the two groups [governmental (Quasi-governmental) and private companies]. Table II shows the linear correlation coefficient between Pearson productivity of intermediate goods in private companies and governmental (Quasi-governmental) in a significant level of (100-0/0=100) and the percentage is equal to 0/11. In other words, there exists a significant level of intermediate goods productivity by 100 percent between the governmental (Quasi-governmental) and private companies and a weak inverse correlation. There are significant differences between the two groups. In Table III, column Mean shows the differences in average productivity of governmental (Quasi-governmental) and private companies, the upper and lower column show the Lower and Upper bound of average difference between the two groups, the next column denotes statistics T, the degree of freedom (df), and significant levels of the sig. This test was carried out at 95 percent confidences. According to this test because the amount of computing T (t=14/94) in the above table is larger than T (5/17), indicates that H1 is accepted or assume that H0 is rejected. In other words, with 0/95 confidences, capital, labour and intermediate goods productivity on the private and governmental (Quasi-governmental) companies there are significant differences.

5. Conclusion

Analysis of the research hypothesis indicates that in the first sub-hypothesis that labour productivity in private companies and governmental (Quasi-governmental) companies there are significant differences. The third sub-hypothesis, the productivity of intermediate goods firms in the private and governmental (Quasi-governmental) companies there are a significant differences. The main hypothesis of this study and the results shows that the efficiency of production (labour, capital and intermediate goods) on private and governmental (Quasi-governmental) companies has significantly differences.

6. References

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