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EFFECTS OF STATE-OWNED ENTERPRISE MODEL ON ORGANIZATIONAL PRODUCTIVENESS IN MACEDONIA

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Abstract

The qualitative analysis of the net operating margin indicator showed that state-owned joint stock companies and joint stock companies where the government is a shareholder as management models have higher profitability compared to public enterprises and limited liability companies in state ownership. The research rejects the hypothesis that the allocation of production inputs, such as labor and capital, affect the degree of production results i.e. this hypothesis is not applicable to state-owned enterprises in Macedonia, based on the available data for 2017. It seems that if the public service is not profitable but legally mandatory the government central or municipal establishes a public enterprise, while profitable enterprises were transformed to joint stock companies exempt from a more rigorous public law regime regarding employment and salaries. Quantitative analysis did not show statistically significant results.

Key words: *State Owned Enterprises, Efficiency, Public Finances, Macedonia*

Introduction

At a time when economic globalization, privatization and market competition are the basic paradigm, one should not neglect the fact that state-owned enterprises ("SOEs") continue to play a significant role in the global economy. In some countries, they account for as much as 20% of the total investment, 5% of the employment and 40% of the domestic output providing services in various economic sectors such as utilities, finance, natural resources, etc.[64] Globally, the profitability of state-owned enterprises has been rising. The proportion of SOEs among the Fortune Global 500 has grown from 9% in 2005 to 23% in 2014, driven particularly by the growth of Chinese SOEs.[65]

64) *Factsheet - Corporate Governance of State-Owned Enterprises* (International Finance Corporation - World Bank Group, 2018)

65) *State-Owned Enterprises: Catalysts for public value creation?* (PricewaterhouseCoopers, 2015), p. 6

After the Second World War, there is a wave of nationalization of key industries in Western Europe to foster economic recovery after the war, while in Eastern Europe there are centrally planned economies until the 1990s. Following the collapse of the Berlin Wall and the spread of liberal economic values influenced by the Western countries, massive privatization takes place in these economies as a reverse process of nationalization. As one of the countries that were part of the socialist system of former Yugoslavia, after the independence Macedonia went through a long privatization process and the number of state-owned enterprises was constantly decreasing.

The subject of this paper is the potential connection between the management model, the number of users, the number of employees and the number of members in the management bodies (management board, supervisory board, director) of state enterprises in Macedonia and the degree of their efficiency expressed through the net operating margin.

This paper addresses the question do commonly accepted factors of productivity such as labor and capital affect state owned enterprise in Macedonia similarly, or differently based on the specific organizational model of SoE. A typically formulated hypothesis assuming the relationship between input and output factors of productivity is 'allocation of production inputs such as labor and capital affects the degree of production outputs',[66] or expressed differently efficient allocation of available resources provides (greater) productivity. This article tests the applicability of said hypothesis on SoEs in Macedonia.

Conclusions are based on a cross sectional study, and quantitative analysis of a stratified sample of 35 state owned enterprises in Macedonia.

Theoretical research framework

State-owned enterprises have different management models: in Macedonia in 2017 there were a total of 129 public enterprises,[67] 14 joint-stock companies in full state ownership, 5 joint-stock companies in which the state is a shareholder and 5 limited liability companies in state ownership. In 2016, 31 of the state enterprises in Macedonia had a total financial loss of over 35 million euros.[68] Having in mind that these losses are covered by the founders of the state enterprises (according to the Law on Public Enterprises[69] state enterprises may be established by the state of Republic of Macedonia, the municipalities and the City of Skopje) i.e. state funds are used to cover the losses, one could naturally question the level of efficiency and effectiveness of the state enterprises.

Whether they will contribute to economic and social development or will constitute an obstacle to it, could largely depend on establishing good practices. These good practices were determined in 2005 by the OECD in the Guidelines for Corporate Governance of State-Owned Companies, and were revised in 2015. They represent soft legal instruments that are not binding for the countries, but provide guidelines on corporate governance of SOEs and on reforming relevant legislation. According to the guidelines, state enterprises are defined as any company in which the state has some kind of ownership (including public enterprises, joint stock companies and limited liability companies).[70]

66) OECD, Defining and Measuring Productivity, available at: https://www.oecd.org/sdd/productivity-stats/40526851.pdf [accessed 22.11.2018];

67) Годишен извештај од регистарот на вработените во јавниот сектор (Министерство за информатичко општество и администрација, 2017) p. 15

68) Како работеа државните фирми во 2016 година, available at http://www.opendata.mk/Home/TekstualniDetails/40?Category=1 [accessed at 1.11.2018]

69) Official Gazette of Republic of Macedonia., 38/1996, 6/2002, 40/2003, 49/2006, 22/2007, 83/2009, 97/2010, 6/2012, 119/2013, 41/2014, 138/2014, 25/2015, 61/2015, 64/2018;

70) OECD Guidelines on Corporate Governance of State-Owned Enterprises, (OECD Publishing, 2015), p. 14

Comparing state-owned enterprises with private enterprises, it could be stated that they are "same, but different". Without operational efficiency and effectiveness there would be no justification for an enterprise to exist, whether it is privately owned or state-owned. However, what makes a state-owned enterprise different from a private one is that its contribution to society and the economy can not be measured solely by financial performance, but also by its other complex economic, fiscal, political and social implications. Compared to other administrative organizations, state enterprises are different because they operate in accordance to competitiveness principles, except when the competition obstructs the provision of the public service.[71]

The existence of state-owned enterprises is primarily necessary to provide public services to citizens (eg. national defense or public parks). Public services are a specific type of services because their consumprion can not be limited to a certain number of consumers (eg. street lighting), they are not cost-effective and could not be undertaken by the private sector. Thus, these necessary public services must be provided by the state and when the citizens pay collectively (through taxes) instead of individually. Another motive for state ownership is the promotion of industrialization and the economic development of a country. This implies maintaining key industries that are of strategic interest to the economy, especially if that sector is a dominant employer, providing support for young industries when the costs of market entry are high, controling over the restructuring of companies in downturn industries, etc. In addition, state enterprises could represent a substitute for regulation in case of natural monopolies or oligopolies (eg. electricity, gas, railways, etc.), but also when states want to limit foreign presence in some key industries.

On the other hand, the presence of state-owned enterprises can threathen the principles of the market economy. State-owned enterprises have access to resources and protection against various operational and financial risks that private companies lack. This could cause obstruction of healthy market competition and discourage the development of the private sector, especially the entry of foreign companies. Fiscal influences are an additional factor that needs to be analyzed when talking about state-owned enterprises - while healthy state-owned enterprises help the treasury, financial losses burden the state budget and may lead to increasing public debt. Due to this fact, the transparent and efficient management of state-owned enterprises and the absence of corruption are crucial.

The evaluation of the efficiency of state-owned enterprises can be made by comparing the financial indicators between state and private enterprises, between enterprises in different countries or comparing the enterprises before and after privatization.[72] Previous research on the subject suggest that in most cases state enterprises have proved to be less profitable than private companies, with some exceptions depending on the specific sectors.[73] Additionally, financial performance tends to improve when compared before and after privatization of state-owned enterprises, although this is not always the case.[74] Other surveys that take social impacts into account in addition to the financial indicators, have found that when the effects of increased inequality are taken into consideration, the aggregate effects of privatization could turn out to be negative.[75] Regarding the management model, there are empirical studies that prove that public enterprises that are partially state owned versus those that are in dominant state ownership achieve a better balance between the social impact and the financial performance.[76]

71) Art.2-a, Art. 37-e par.2, Art.37-n, Law on Public Enteprises ibid;

72) OECD Guidelines on Corporate Governance of State-Owned Enterprises, Ibid., 31;

73) Anthony Boardman and Aidan Vining, “Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed, and State-Owned Enterprises”, Journal of Law and Economics, vol. 32, issue 1,(1989): 1-33

74) DeWenter, K. and P. Malatesta. (2001). "State-Owned and Privately-Owned Firms: An Empirical Analysis of Profitability, Leverage, and Labor Intensity." American Economic Review, 91 (1): 320-334.

75) J. Carrera, D. Checchi, M. Florio (2004), “Privatization Discontent and its Determinants: Evidence from Latin America”, POLITICHE PUBBLICHE, SVILUPPO E CRESCITA

76) Aidan Vining, Anthony Boardman, Mark Moore, “The Theory and Evidence Pertaining to Local Government Mixed Enterprises”. Annals of Public and Cooperative Economies 58 (1), (2014): 53-86

State Owned Enterprises in the Republic of Macedonia

The definition for state enterprises is provided in the Law on Public Enterprises according to which they are enterprises established by the Government of the Republic of Macedonia, the municipalities or the City of Skopje and have the goal of providing services of public interest on the territory of Macedonia. State-owned enterprises can have different management models. At the moment, SOEs in Macedonia have the following models: public enterprise ("PE"); a limited liability company ("LLC") and a joint stock company ("JSC"), whereby a distinction should be made between a state-owned joint stock company when the state is the sole shareholder and a joint-stock company where the state appears as one of the shareholders. According to the above, in the Law on Public Enterprises, the term "public enterprises" is used as a generic term covering not only PEs but also other management models (LLC, JSC) which are authorized with performing public interest activities. In this paper, the term "state-owned enterprises" is used as a generic term that covers all management models.

State-owned joint-stock companies and limited liability companies in which the state appoints managers and elects members of the supervisory board are companies that operate and are organized in accordance with the Law on Trade Companies, hence the employees have the status of employees in accordance with the Law for Labor Relations. What differentiates these companies from trade companies and joint stock companies in which the government is one of the shareholders is that the latter are private companies where the government appoints representatives on its behalf in the management bodies, but they are unambiguously part of the private sector. In these enterprises, the state has no dominant control, but has presence in the governing bodies, thus protecting the interests of the citizens.

Joint stock companies in state ownership are joint stock companies in which the sole shareholder on is the Government of the Republic of Macedonia and provide public services activity for which they have a public authorization obtained from the founder itself or from the competent ministry. They work for profit, but profits are issued as a dividend to the founder i.e. the Government.[77] Regarding public enterprises and limited liability companies, there is a dualism in the regulation, although both of them carry out business activity, they have different legal regime for election and dismissal of members of the management bodies and different legal treatment in relation of staff recruitment.[78] Their employees are not subject to the same employment rules as state employees, and the criteria for selection and dismissal of the members of the management boards and supervisory boards are decided by the companies themselves with a Statute approved by the founder. The existence of these companies remains controversial and there is no single view whether they are part of the public sector or not. Pursuant to the Law on Trade Companies[79] they are private companies where the government is the owner.

On the other hand, in accordance with the Law on Public Enterprises, companies that provide services of public interest (regardless of whether they are public enterprises that are transformed into JSC or LLC with public authorization) are subject to the same rules, working principles and responsibility as well as public enterprises. As a rule, public enterprises are organized in JSC if private individuals or legal entities invest in them. In the limited liability companies in state ownership, the role of the shareholders meeting is performed by the Government of the Republic of Macedonia, directly or through the Government bodies authorized to do so.[80] Public enterprises do not perform their business activity only for the profit, but they work on the principle of self-financing by achieving a financial balance i.e. balancing income and expenditure. Excess income, and not profits, benefits the public enterprise. The rules of bankruptcy do not apply to a public enter-

77) Анализа на именуваните и избраните лица (Центар за управување со промени, 2018) p. 23

78) Југослав Ѓорѓиевски, Правните критериуми за назначување на раковоство на јавни претпријатија, регулаторни и самостојни тела, (Институт за демократија Социетас Цивилис, 2018), p. 19

79) Offical Gazette of Republic of Macedonia, бр. 28/04, 84/05/ ,25/07 87/08,42/10,48/10,24/11 и 166/12;

80) Art. 8-a, Law On Public Enterprises ibid;

prise and the founder is obliged to cover losses from his operations.[81] It should be noted that by amending the Public Debt Law in 2014, the debts of public enterprises for which the state has not issued a sovereign guarantee are excluded from the definition of public debt. This change in legislation represents an artificial reduction in the level of public debt, due to the fact that all debts and losses of the public enterprises are covered by the state, regardless of whether a guarantee has been issued for them. In this way, there is a lack of transparency in the management of state enterprises and the citizens remain uninformed about how state funds are spent.

Under Article 30 of the Law on Public Enterprises, the founder invests the surplus funds from the operations of the public enterprise in the public enterprise based on detailed financial plans. The public enterprise transfers the surplus funds from the operations of the public enterprise, which are not covered by investments in the public enterprise with the investment program prepared in accordance with the detailed financial plan, in the Budget of the Republic of Macedonia, the budget of the municipality or the City of Skopje. Regarding the excess revenues from the operations of the public enterprise that are paid in the Budget of the Republic of Macedonia, the founder may take a decision to cover the losses of another public enterprise, to be paid into a separate account with the purpose of financial support and development for performing activities of public interest to a legal entity established by the Republic of Macedonia or to cover the liabilities of the budget towards the budget funds. In addition, pursuant to Article 23-a, paragraph 3, if the operating report determines deficiencies and / or losses in the financial operations, the director is obliged to remove them in the next six months. If they are not removed within the given legal deadline, the director of the public enterprise shall be dismissed before the expiration of the mandate. From the foregoing it can be concluded that the legal framework provides certain mechanisms of transparency and accountability of public enterprises, but there remains the need for in-depth research related to the potential need for reforming public enterprises in Macedonia.

Methodology

Data on the number of households and service users are taken from the population statistics provided by the State Statistical Office.[82] The number of employees in state-owned enterprises is taken from the Annual Register for Public Sector Employees for 2017.[83]

Net operating margin is an efficiency indicator that is widely used in the financial field, and is calculated as a quotient of net operating profit and sales revenue. This indicator shows how much operating profit is generated by the enterprise for each unit of sales revenue after covering the operating costs. The data required for the calculation of the indicator was mostly provided by state-owned enterprises on the basis of submitted requests for information of public character and partly from the Central Registry.

The research is a cross sectional study and the data was obtained in 2018, representing the state of observed variables by the end of 2017. The research observed a stratified sample[84] of n=32 SoEs from a known population N=174, by the criteria: type of organization according to legal status (PE n=22/N=129, JSE where the Government is a single shareholder n=6/N=35, SoEs where the government owns a stock(s) n=2/N=5 and LLCs in Government property n=2/N=5), and number of employees. All organizations were

81) Borce Davitkovski, Ana Pavlovska-Daneva, Dragan Gocevski, Public Corporations (Faculty of Law Skopje: 2014), Reader p. 178

82) Макстат база, available at http://makstat.stat.gov.mk/PXWeb/pxweb/mk/MakStat/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef, [accessed at 08.11.2018]

83) Годишен извештај од регистарот на вработените во јавниот сектор (Министерство за информатичко општество и администрација, 2017), available at http://www.mio.gov.mk/sites/default/files/pbl_files/documents/reports/izvestajreg2017_v1.02.pdf, [accessed at 11.11.2018]

84) Janet Buttolph Johnson, H.T. Reynolds, Jason D. Mycoff, Political Science Research Methods 8th ed. University of Delaware, (Sage-Copress, Los Angeles, London, New Delhi, Singapore, Washington DC: 2016), 223;

placed in a list separated by Status, then by detecting the 'mode' by number of employees, the first in each group with identical number of employees was chosen. Accepting that PE had very few organizations with identical number of employees (only 6 groups), the 7 largest and national PEs were chosen deliberately to test effects of size of enterprise on productiveness indicators and the remaining were chosen by random. The other types of organizations were chosen by random.

Joint stock companies and limited liability companies are selected by sectors because they represent small populations. To test if there is a significant difference in the productivity indicators by type of organizations, a means comparison was used via independent sample t-tests (assuming unequal variances).[85] The relationship between the used variables was tested via a correlation coefficient analysis and multivariate linear regression test.[86] The analysis applied the following regression equation:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 E_3 + \beta_3 E_4 + \varepsilon$$

каде:

Y (Dependent variable) is an efficiency indicator i.e. net operating margin (Operating profit / Sale Revenue* 100);

X_1 (Independent variable) is the number of employees in state-owned enterprises;

X_2 (Independent variable) is the number of members in the governing bodies (management board, supervisory board and board of directors);

E_3 (explanatory variable in the hypothesis, treated as independent in the regression) is the number of users expressed by the number of people in the territory where the organization operates;

E_4 (explanatory variable in the hypothesis, treated as independent in the regression) is the number of users expressed through the number of households on the territory where the organization operates.

$$X_1, X_2, E_3, E_4 \rightarrow Y$$

Hypothesis diagram

To prevent heteroscedasticity a natural log was used for the values of all independent and explanatory variables. The Dependent variable is already represented as a percentage, thus using a log. was not necessary.

The assessment of the efficiency of state-owned enterprises is a complex task because it should take into account both the commercial and non-commercial benefits of their operations. The ideal state-owned company is distinguished with good financial performance, but it also fulfills its specific social goal (for example, cheap electricity for all citizens). If a state enterprise fulfills certain social goals, but is unprofitable it should be a subject to strategic reforms. By contrast, state-owned enterprises with financial losses that also fail to fulfill their social goal should be reformed or liquidated. For these reasons, an in-depth analysis of state-owned enterprises would mean assessing both financial indicators and social goals.

Measuring the social impact requires a holistic approach i.e. analysis of social, political, economic, fiscal and environmental impacts which surpasses the research question of this paper. This paper only analyzes the level of efficiency of the state-owned enterprises measured by the indicator net operating margin.[87]

85) David S Moore, The Basic Practice of Statistics 2nd Ed., (W. H. Freeman and Company: 2000), 390, 401, 406; Maryann Barakso, Daniel M. Sabet, Brian Schaffner, Understanding Political Science Research Methods The Challenge of Inference, (Routledge Taylor and Francis, New York and London: 2014), 149;

86) Janet Buttolph Johnson et al.Ibid, 478, 492-496; Maryann Barakso, et. al. Ibid, 154;

87) State Owned Enterprises in the EU, (Institutional Paper 031, European Commission, 2016): p. 33

Analysis Results

Results from the means comparison tests reveal no statistically significant difference in Net Operating Margin values between SoEs measured by the legal regime they operate under. Meaning it makes no difference whether the organization is operated under public law as an PE, or under private law (Diagram 1. Appendix) as a JSC or LLC. There is a very visible difference in means, however due to the amount of variance within the mean it cannot be considered statistically significant, but rather coincidental.

There is one noticeable pattern, PE and LLCs observed in this study have a negative Net Operating Margin value, thus not considered profitable while JSC regardless of management shares being public or mixed, have positive Net Operating Margins (Graph 2. Appendix). Thus, the average values of the indicator operating net margin for the public enterprises and limited liability companies included in the sample are negative and amounts to -17.17% and -23.92% respectively. By contrast, state-owned enterprises that are established as joint-stock companies in which the state is one of the shareholders have a positive average value of the indicator of 5.56%, while state-owned joint stock companies in full state ownership have the highest average value of the operational net margin of 26.05%.

Regarding the correlation coefficient, assessing the relationship between observed variables: number of employees, size of management, size of consumer base. Regarding the correlation coefficient for assessing the relationship between the variables "number of employees", "the number of members of management bodies", "the number of beneficiaries" (households and population) and the "operating net profit margin" indicator, it can be noted that there is no significant correlation (Table 1).

Neither the number of employees, nor the size of the management and the number of users (household or population) is not a significant predictor of the profitability of state-owned enterprises (Table 2, Annex).

Larger municipalities are founders of enterprises with larger number of employees, but there is no significant connection with the profitability of the state owned enterprises. Most likely, due to the PE model, most of these enterprises have a minimum number of members of the management board and supervisory board and one director (as per the legaly prescribed minimum), thus they tend to have smaller management compared to the number of residents and households.

If we were to interpret the results more broadly, though they show no statistically significant relationship between observed variables, i.e. the number of employees, size of management and size of consumer base, still the closest to significant relationship is the size of management ($p=.05$).[88] With negative correlation regression coefficients this variable indicates a tendency for organizations with larger managements to have lower profits or put in other words a percentage increase in management size may lead to poorer financial results (conclusions are applicable only toe state owned enterprises based on the observed sample in Macedonia).[89]

88) Although $p = .05$ is considered to be 95% probability meaning that the result is significant, in other tests the same variable showed a higher value of p, i.e. the result is not robust. Since it is at the very margin of significance we cannot confidently claim that there is a significant connection;

89) Another interpretation of the same conclusion would be that companies with lower (negative) financial results tend to have percentual larger managements.

Conclusion

Based on the observed sample, the research concluded that the hypothesis allocation of production inputs such as labor and capital affect the degree of production outputs' is not applicable to state owned enterprises in the Republic of Macedonia, based on data representing state of affairs by the end of 2017.

This conclusion must accept all inherent weaknesses such as possible sampling error, and omitted variable bias,[90] however the research did not intend to seek out all predictors of profitability but to test whether or not, labor and capital expressed by employees, management, size of consumer base (as a source of potential revenue) were significant contributors to profitability. The research also sought to see significant differences in profitability between the various types of state-owned enterprises.

Because quantitative analysis did not return significant results, or at least not strong relationships we may only provide an interpretation based on qualitative observation and interpretation of conditions in the country. Because JSC observed in this research proved to be the only profitable ones, regardless of management structure, yet they were all national level companies we may assume that profitable business with a large enough consumer base were privatized or transformed in to a trade company to model private sector behavior even though they remained public owned and public managed which is a curiosity of itself. Why would the government transform a public enterprise in a joint stock company and not sell shares? We only wonder if there is something inherently wrong with public enterprise model or not, because the PE showed to be not profitable, but opposite, they created debt. Yet PEs must operate as they provide communal services, a public interest municipality and the central government are obligated to provide regardless of financial viability. Another curiosity are LLCs in public ownership, which are also not profitable, but are not PEs. This leads us to assume that there is no clear order as to why some enterprises were transformed or established as companies according to private legal regime, while others were public, except the aforementioned logic – that if a service is not profitable but legally mandatory the government central or municipal establishes a public enterprise, while profitable enterprises were transformed to joint stock companies exempt from a more rigorous public law regime regarding employment and salaries.

90) Future research may want to look into the following variables: salaries of employees and management, price of product/service, susceptibility to corruption, age of employees, education structure of employees, level of complexity of production process, PPP per capita;

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Appendix:

Table 1: Correlation Coefficient

	X1 Employees	*X2 DecisionMakers*	*Households*	*Population*	*Y Net Profit Operating Margin*
X_1 Employees	1				
X_2 Decision Makers	0.26	1.00			
E_1Households	0.31	−0.43	1.00		
E_2 Population	0.58	−0.31	0.73	1.00	
Y Net Profit Operating Margin	0.16	−0.27	0.15	0.12	1

Table 2: Regression Analysis

Regression Statistics	
Multiple R	0.41
R Square	0.16
Adjusted R Square	0.04
Standard Error	33.91
Observations	32.00

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	6123.02	1530.76	1.33	0.28
Residual	27	31055.00	1150.19		
Total	31	37178.03			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	69.97	59.18	1.18	0.25	−51.44	191.39	−51.44	191.39
X1 Employees	7.11	4.14	1.72	0.10	−1.39	15.61	−1.39	15.61
X2 Decision Makers	−28.10	13.96	−2.01	**0.05**	−56.74	0.55	−56.74	0.55
Households	0.27	3.46	0.08	0.94	−6.84	7.38	−6.84	7.38
Population	−4.40	4.80	−0.92	0.37	−14.25	5.45	−14.25	5.45

Graph 1.

PE – public enterprise, SoE1 – JCE where Government is the only shareholder, SoE2, JCE where Government has a stock(s), SoE3 – LLCs in Government ownership.

PE, SoE1 and SoE3 are Public Owned and Public Managed. SoE2 is mixed ownership and mix managemend, Public/Private.

PE are Governed under public law.

SoE1, SoE2 and SoE3 are governed under private (free competition) law.

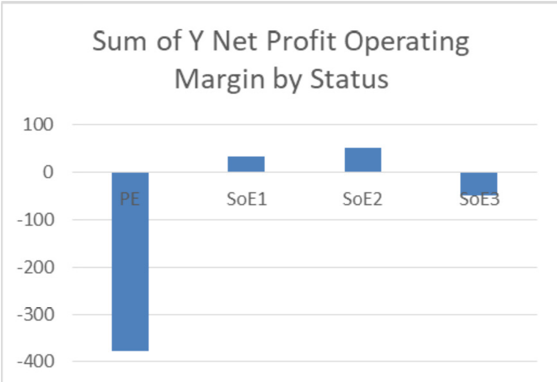

Table 3. t-Test: Two-Sample Assuming Unequal Variances

	PE	*JSC and LLCs*
Mean	-17.17	3.76
Variance	566.80	2473.58
Observations	22.00	10.00
Hypothesized Mean Difference	0.00	
df	11.00	
t Stat	-1.27	
P(T<=t) one-tail	0.12	
t Critical one-tail	1.80	
P(T<=t) two-tail	0.23	
t Critical two-tail	2.20	