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STATISTICAL ANALYSIS FOR THE FINANCIAL REPORT FROM ENERGY STREAM/REVENUE IN IRANIAN SMALL AND MEDIUM-SIZED INDUSTRIES

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ABSTRACT

The Environmental Impact Assessment (EIA) plan is an indispensable part of all cycles of industrial projects. By the way, it results to compose the initial matrix of data in the preliminary assessment of the screening step. Iranian industrial projects recognized miscellaneous material streams introduced into industrial ambient and in released shapes. One of the important assessments posed in the EIA plan refers to costs/revenue assessment that assigns Data Envelopment Analysis (DEA) to discover the performance of industrial projects along with statistical tests. The objective of the current study prosecuted to discern the cost/revenue analysis in statistical language. Therefore, the empirical equations and SPSS Software of IBM 20 were employed in the analysis of financial reports. The findings were succeeded to present linear relationships for the dependent and independent variables and in full compliance with diagrams developed by SPSS software. The results of the DEA model ended up with the emergence of an efficiency border for 8 industrial groups (334 industries) around a range of 0 to 0.4 by scatter plot. There were no significant differences between dependent and independent variables in different models assessed via T and F and ANOVA tests. It can be concluded that the findings of the DEA model displayed by the scatter plot are a benchmarking level for industrial projects once before complete construction.

I. INTRODUCTION

The scope of statistical science is such that its key role in all sciences is clearly evident today. In this article, only a brief description of the employed parametric tests is mentioned. Parametric tests are used to compare data with normal distributions. These tests should not be used if the data do not follow the normal distribution. For example, the ANOVA statistical test is used to compare the mean of a quantitative variable with the normal distribution in more than two groups to check whether the mean of that variable is the same among the groups. The T-test is used to compare the values of a quantitative variable in more than two groups (which may be two independent groups or one group at two different times). By accessing small quantities of two types of independent and non-independent variables, various functions can be defined. Methods such as regression analysis and least squares can be used to determine the type of function obtained from the values. These methods are mostly used in the preparation and evaluation of analytical grading charts [1, 2]. The dimension of a project depends on a variety of variables such as its capital, number of workers, production stream, and sales rates, etc. In the literature, the scale of small and medium-sized enterprises comprises up to 10, 50, and upper than 50 for micro, small and medium-sized industrial enterprises [3, 4].

Regardless of the dimension and scale of industrial projects all of them must go through the project identification steps in the EIA plan. The screening step of the EIA plan provides an inventory of availability in the initial assessment. Based on the initial assessment the framework of the project underpins financial and economic estimations, examining technologies and practices in the matrix of criteria and alternatives to select the best and optimized technology and moves to decision science theory. The public

involvement in the project also configures the pollutants discovery and many other aspects of projects. The review of alternatives and criteria in reports of EIA is an indispensable step that determines assigning and recruiting relevant technologies in this regard. The expert ideas are taken into consideration in this step. After completing the review process and examining the alternatives, the decision comes into view with the reports of financial & economic stability of the project. After this step project moves towards the implementation step and sustainability of the project is requested in the post-EIA plan [5-8].

DEA is a prominent efficiency assessment instrument that has widely employed in a variety of sciences these days. The configured DEA models comprised from CCR, BCC, IRS, DRS, GRS, AR (Assurance Region), NCN (Non-Controllable), NDSC (Non-Discretionary), BND (Bounded Variable), CAT (Categorical Variable), SYS (Different Systems), SBM-Oriented (Slacks-based Measure), SBM-NonOriented, Weighted SBM, Super-SBM-Oriented, Super-SBM-NonOriented, Super-Radial, Cost-GRS, New-Cost-GRS, Revenue-GRS, New-Revenue-GRS, Profit-GRS, New-Profit-GRS, Ratio (Revenue/Cost), Bilateral, Window, FDH, and Malmquist-Radial. The traditional DEA model was used in the performance analysis of 8 industrial groups of projects by the present study. The Friedman test is a statistical test in the pack of SPSS software and similar to the F test. It was applied as both ranking and weighing systems in Multi-Criteria Decision Making models in a situation of uncertainty [9, 10].

The objectives discussed by the current research encompass (1) developing a linear function based on recent costs of energy and revenue of products streams in the market of Tehran, Iran (2) conducting a regression analysis based on dependent (revenue) and independent (costs of energy stream) variables by SPSS software and empirical equations (3) investigating performance of industrial projects (8 groups of industrial projects individually) once before complete construction via DEA model displayed by scatter plot (4) introducing statistical tests to figure out significant differences between values and further analysis (any possible test). The novelty of the present research refers to the development of a linear function based on recent costs of energy and revenue of products streams (extracted from screening step of industrial projects in EIA plan) in the market of Tehran, Iran.

II. LITERATURE REVIEW

The financial efficiency of 85 Spanish insurance companies assessed by the DEA model and a linear regression plot depicted among the values obtained. Other statistical tests applied to further analyses of values. The variables employed in the DEA model encompassed 5 inputs and 1 output [11]. Shahroudi [12] developed a linear production function of $Y=2.44L0.081K0.97$, $\alpha+\beta\leq 1$; $Y=2.374L0.656K0.974$ via SPSS analysis of kaab Douglas for Iranian small-scale industries. The SPSS and Minitab software's applied to assess data of forty-five enterprises in Iran. The findings resulted in underpinning a model along with weighing indices [13]. The effects of sustainability of new industries have investigated by Madhoushi and Nasiri [14] to figure out the significant relationship between circumstances in the expansion of industries via cox model and SPSS analysis. The weight restrictions of the DEA model in distribution networks have been taken into consideration regarding input, total cost, and various outputs. To analyze the results, the regression model applied to find the aggregation of data around the line [15]. The statistical tests of regression, correlation, etc. assigned to analyze data of financial, and social performances (13 groups of industries). The expert idea distinguished the values of weights of criteria. The significant differences among various alternatives determined [16]. The 51 Indian domestic banking industries have assessed to find the technical efficiency via both DEA and Tobit analysis during 2006-2007. It reported to average technical efficiency score of about 0.792. A scale efficiency deployed by significant differences caught up using SPSS software. The industries underwent ANOVA test, pair-wise comparison test, and stepwise regression by tabulated information [17]. The 29 datasets examined via conformal regression with uncertainty to guarantee predictions. Further analysis has done using boxplots, error bars, prediction error flow diagrams, etc. The prominent role of conformal regression proved in bioactivity prediction generation via confidence levels [18]. To evaluate the performance of Slovak enterprises in financial statement reports employed a prediction model along with multiple regression analysis from 2015 to 2016. The results provided important points to recede the risk of bankruptcy in the assessed cases. A significant difference, correlation had obtained via t-test and Pearson correlation test and coefficients [19]. Both regression and Tobit analysis models have used to investigate obtained performance ranks via the DEA model for Indian airlines from 2005 to 2012. The links among drivers of technical, operational, and market performances had assessed and suggested to select the technical efficiency as the best evaluator of performance indicator [20]. Conventional and Islamic banking have taken into an investigation in terms of profitability, efficiency, and liquidity factors from 2013 to 2017. The statistical parameters of t-test, ratio analysis, and regression analysis requested to discover the differences between the two systems of banking [21]. The impact of green manufacturing scrutinized in the organizational performance in India. The performance estimated through the regression analysis with one dependent and 5 independent variables. It resulted in developing linear equations and relationships with maximum and minimum fitness levels of 50.4% to 77.9% for lines. The further analysis had done via correlation tests and sensitivity analysis. Finally, many models introduced for financial performance evaluation along with simulation models and validation of them [22]. A study evaluated the operating performance of 14 shipping industries based on financial indicators of assets, stockholder's equity (input variables) operating revenue, and net income (output variables) via the DEA-CCR model. Also, regression analysis assigned for the same purpose, and the findings of both models compared each other. The findings in ranking systems were different in models. Also, the application of regression analysis examined in a linear relationship versus the efficient borderline of the DEA model. The input and output variables were the vertical and horizontal axis of the diagram [23]. The Indian automotive industries examined for performance analysis via Tobin and financial statement analysis based on costs of production, net value-added, fixed capital, number of workers from 1980 to 2007. The statistical analysis tests configured by one dependent and 11 independent variables. The coefficient robust z-value calculated for the independent variables. The negative and positive values of the coefficients tabulated by the way [24]. In the assessment of the performance of 25 Indian automobile companies applied data analysis mean, median, standard deviation as descriptive statistics & correlation, regression, ANOVA, the test of significance, and variety of other flow diagrams displayed in parallel with objectives followed with the present study from 2011 to 2015. A good statistical analysis conducted with valid results [25]. A dataset of 97 various kinds of Indian industries contains four groups considered to be assessed via statistical analysis such as t-test and mean difference, ANOVA test, etc. It resulted in identifying forty

percent of globalized industries [26]. The regression analysis requested for existing variables of Iranian chemical industries registered on the Tehran stock exchange from 2005 to 2010. The relationship between variables and significant differences, F and T-tests investigated. The linear relationships among variables of operating profit, net profit, and cash flows had proved. There were no significant differences between dependent and independent variables in different models assessed [27].

III. METHODOLOGY

The initial data of industrial projects were collected from in-charge organizations of both Iranian industries and Iranian protection agency. The data were evaluated by the evaluator team in the screening step of the EIA plan. The screening step of industrial projects was provided the required information for the initial assessment. Then data were divided into two sections such as costs of energy and revenue of products. The below-mentioned tests were assigned to find the performance of industrial groups of projects according to Figure 1.

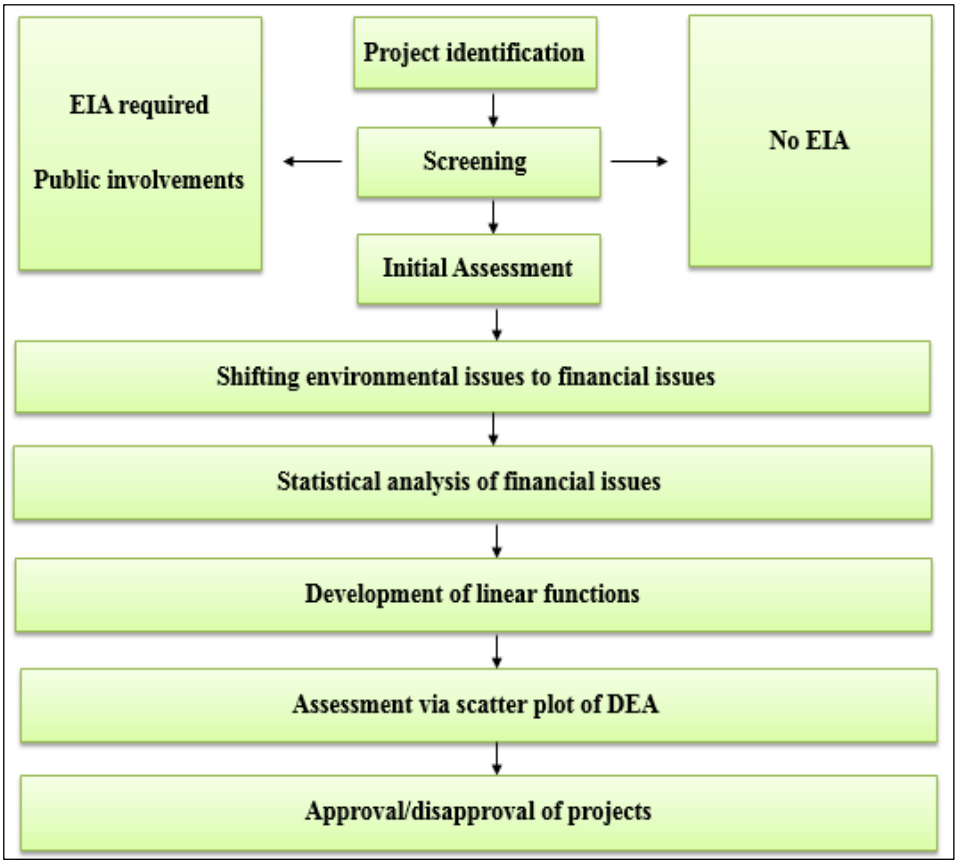

Figure 1. The evaluation steps of EIA and followed work for current research.
Source: Author, (2021).

The costs of the energy stream encompassed the sum of outlays of water, power, fuel consumed, and salary of staff. The revenue of industries engulfs the income from selling industries products individually and annually in each group.

$$y = a + bx \quad (1)$$

$$b = \sum(x.y) - \sum x. \ \frac{\sum y}{n} / \sum x^2 - \frac{(\sum x)^2}{n} \quad (2)$$

$$a = \bar{y} - bx^- \quad (3)$$

$$r = \sum(x - x^-)(y - \bar{y}) / \sqrt{(\sum(x - x^-)^2 . \sum(y - \bar{y})^2)} \quad (4)$$

For the regression equations, n is the number of observations, x is the mean of all x-values, y is the mean of all y-values, and r is the coefficient of the correlation. With regard to this fact that the objective followed by the present research does not specifically include the performance analysis of industrial groups so the equations of the traditional DEA model united with the weighing system of the Friedman test were ignored to appear in the methodology section.

IV. RESULTS AND DISCUSSION

IV.1 IRANIAN INDUSTRIES

By the present study, the Iranian industries comprised from 8 groups according to appendices such as Iranian Wood and Cellulose Industries (IWCI), Iranian Textile and Leather Industries (ITLI), Iranian Mining and Aggregate Industries (IMAI), Iranian Food Manufacturing and Processing Industries (IFMPI), Iranian Plastic Industries (IPI), Iranian Electronic Products Manufacturing Industries (IEPMI), Iranian Chemical Industries (ICI), and Iranian Household Appliance Industries (IHAI). The existing information the below, figures & Table indicate the data of power, water, and fuel consumed and the number of employees as main industry-specific factors (energy stream) that estimated by the team of evaluators of Iranian organizations. The values have estimated for 8 industrial groups in the EIA plan initially.

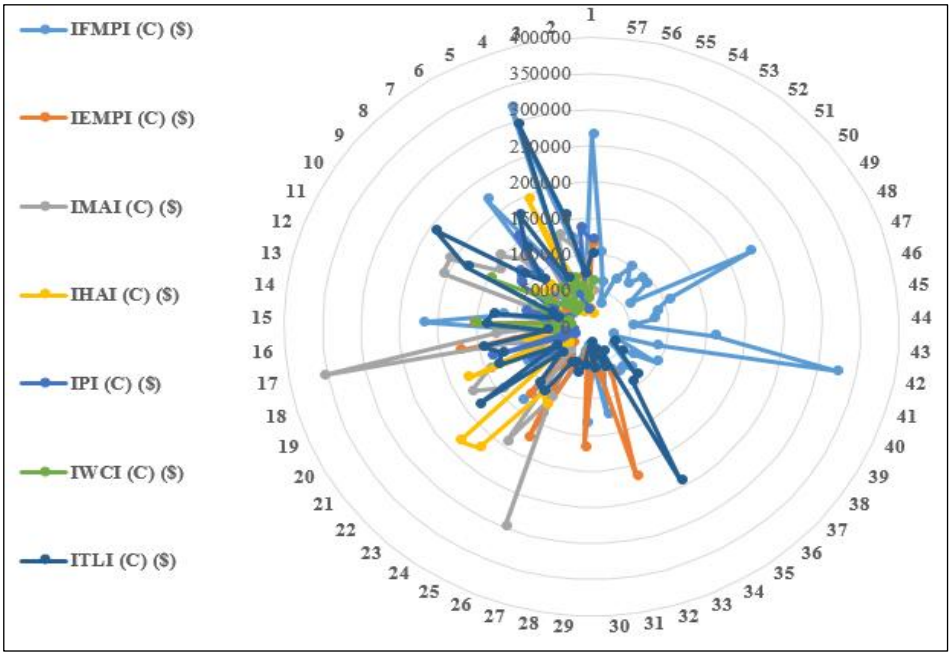

Figure 2: The costs (energy stream) of industrial groups.
Source: Author, (2021).

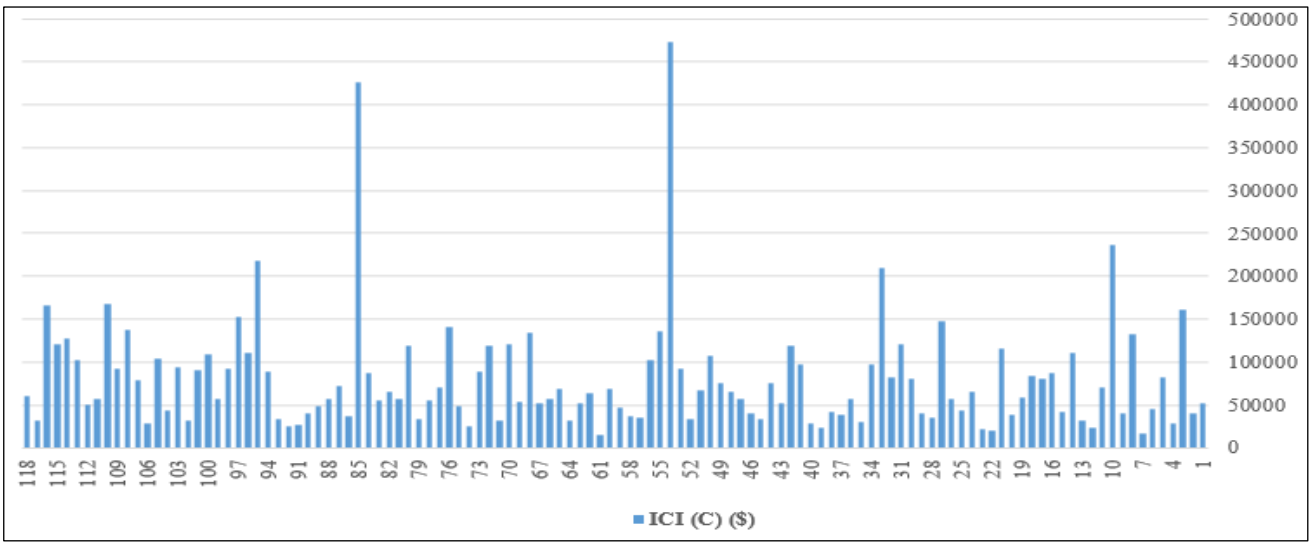

Figure 3: The costs (energy stream) of ICI.
Source: Author, (2021).

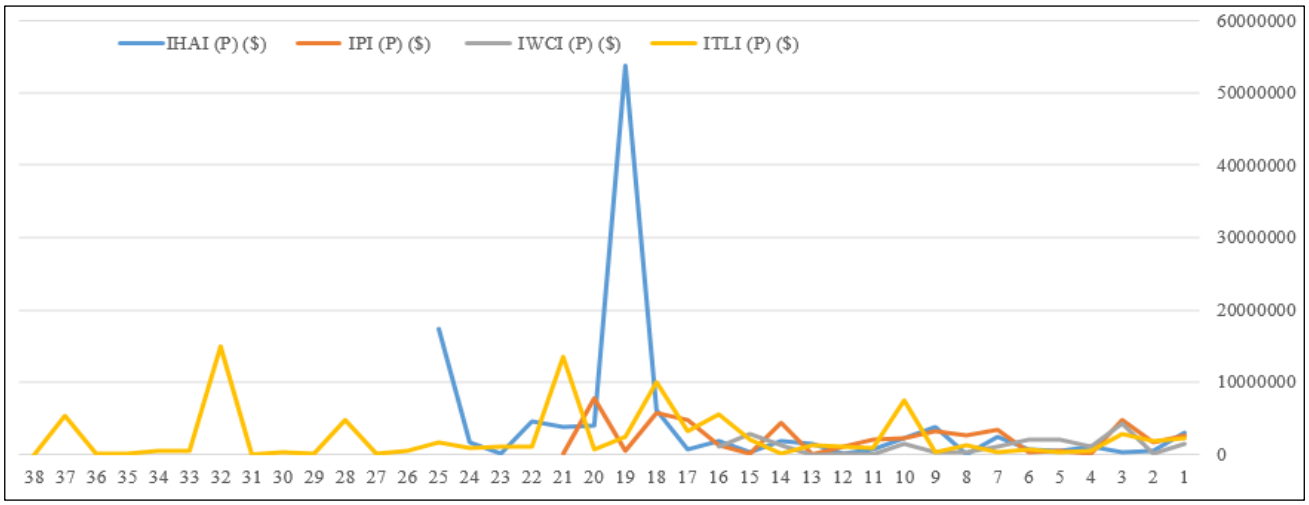

Figure 4: The revenue of industrial groups.
Source: Author, (2021).

Table 1: The revenue of industrial groups.

IMAI (P) ($)	IEMPI (P) ($)	IFMPI (P) ($)	ICI (P) ($)	
7269230770	4000000	8076923	1153846.154	50000
1153846154	2000	1300000	1501000	81000
500000	200000	1238076.92	6000000	5697992
1200000	160000	536470	960000	33693600
1200000	54000	3750000	1442308	1500000
150000000	150000	1615384.6	250000	660000
182692.3	300000	19384615.5	150000	1200000
600000	250000	823384.61	2554070	2115384.62
6923076.9	240000	2400000	520000	764307.7
3070000	15000	380000000	110770	186300
5769.23	1200000	57600	1350000	2884615.385
5769230.77	400000	291600	58153.85	360000
5192307.7	30000	1000000	173076.93	36000000
557.5	3500000	7846153.85	38461153.85	200000
390000	350000	7837500	100000	350000000
3000000	1523076.9	2769230.77	130000	5400000
4038461.5	1600	1600000	650000	5244000
342000	200000	27594000	4320000	800000
45000	310000	1923076.95	1090000	2769230.77
356400	615384.61	3160000	585000	230000
30000	3846153.84	3000000	240000	461538.5
240000	630000	1609615.4	15120	1269230.8
2000000	600000	5775000	100000	414000
2300000	553846.16	1615384.6	2000000	42115385.6
200000	2000000	6230769.24	200000	35000000
20000	1000000	5859230.77	153846.2	923077
	307692.3	1121538.5	1700000	1000000
	584615.4	1275000	942307.7	1000000
	500000	7692307.7	2500000	5774859
	900000000	3461538.4	1495384.5	2137500
	540000	3346153.84	960000	19461538
	8160000	1000000	634615.4	400000
	207692.3	13148000	2307692.3	5400
		119000	74870.8	3240000
		3000000	24923076.9	3553846
		6000000	114400	1038461.5
		272750	1000000	2223076.9
		250000	50000	12500000
		243000	1442307.7	5384615.5
		16800	692307.7	38500000
		4147200	911538.5	22730770
		1400000	962350	15000
		18720000	2884615.4	4830572
		15000	1080000	240000
		750000	876923	125000
		12096	2700000	2307692.3
		990769.23	3600000	23100000
		2153846.15	4812692.3	1239300
		380134618	5184000	576923
		770000	10341000	3575000
		372000	17307.7	1538461.5
		16000000	2076923	1500000
		1900666	7427504.8	561538.5
		4000000	617616	2608695
		600000	18269.24	3370000
		3000000000	400000	11434615.4
		1920000	199038.5	2284615.4
			50000	18000000
			81000	12600000
			5697992	500000
				3846153.9

Source: Author, (2021).

In the figures and Table, the symbol of P and C means the revenue of products and costs of energy stream respectively. Tables 2 and 3 show the regression analysis of cost/revenue by SPSS software and empirical equations respectively. Figure 5 displays the linear regression diagrams of cost/revenue analysis of industrial groups.

Table 2: The regression analysis of cost/revenue.

Industries /models	R	R square	F	Sig.	Standard coefficient beta
ITLI	0.132[a]	0.017	0.638	0.430	-
				0.155; 0.430	0.132
IHAI	0.339[a]	0.115	2.995	0.097	-
				0.097; 0.925	0.339
ICI	0.068[a]	0.005	0.534	0.466	-
				0.320; 0.466	0.068
IMAI	0.208[a]	0.043	1.085	0.308	-
				0.144; 0.308	-0.208
IWCI	0.141[a]	0.020	0.284	0.603	-
				0.603; 0.158	0.141
IFMPI	0.095[a]	0.009	0.504	0.481	-
				0.481;0.192	-0.095
IPI	0.235[a]	0.055	1.112	0.305	-
				0.305; 0.185	0.235
IEMPI	0.099[a]	0.010	0.305	0.585	-
				0.585; 0.310	-0.099

(P= revenue) dependent variable
a. predictor (constant). (ITLI (C))
R = Regression

Source: Author, (2021).

Table 3: The results of regression analysis.

Regression /industrial groups	a	b	Linear function (y)	R
ITLI	97923.10781	0.00236	97923.10781 + 0.00236 X	0.132
IHAI	73164.1681	0.001938	73164.1681 + 0.001938 X	0.339
ICI	79844.96	0.000135	79844.96 + 0.000135 X	0.068
IMAI	129842.4025	-1.18E-05	129842.4025 -1.18E-05 X	-0.208
IWCI	57845.1493	0.00438	57845.1493+0.00438 X	0.14088
IFMPI	98253.5	-1.579E-05	98253.5 – 1.579E-05 X	-0.095
IPI	67680.8269	0.00454	67680.8269 + 0.00454 X	0.235
IEPMI	73924.0551	-3.15E-05	73924.0551 – 3.15E-05 X	-0.098

X= values of revenue; y = values of costs

Source: Author, (2021).

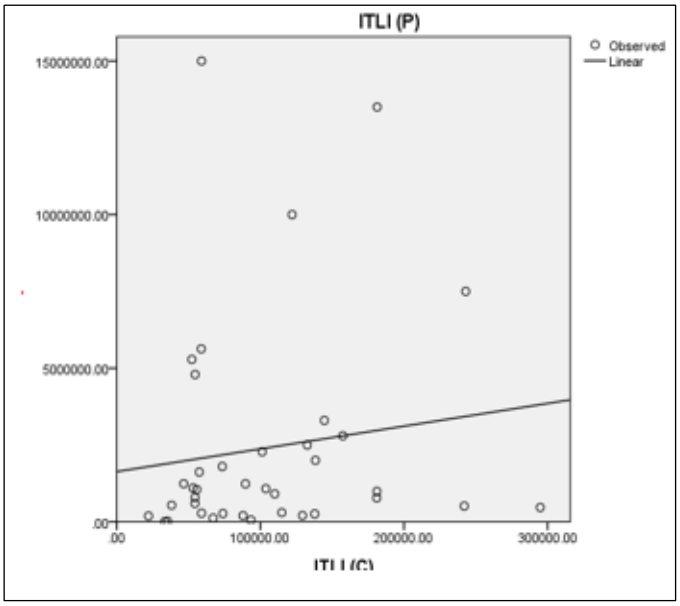

Figure 5a: The linear regression diagrams of cost/revenue analysis of industrial groups.
Source: Author, (2021).

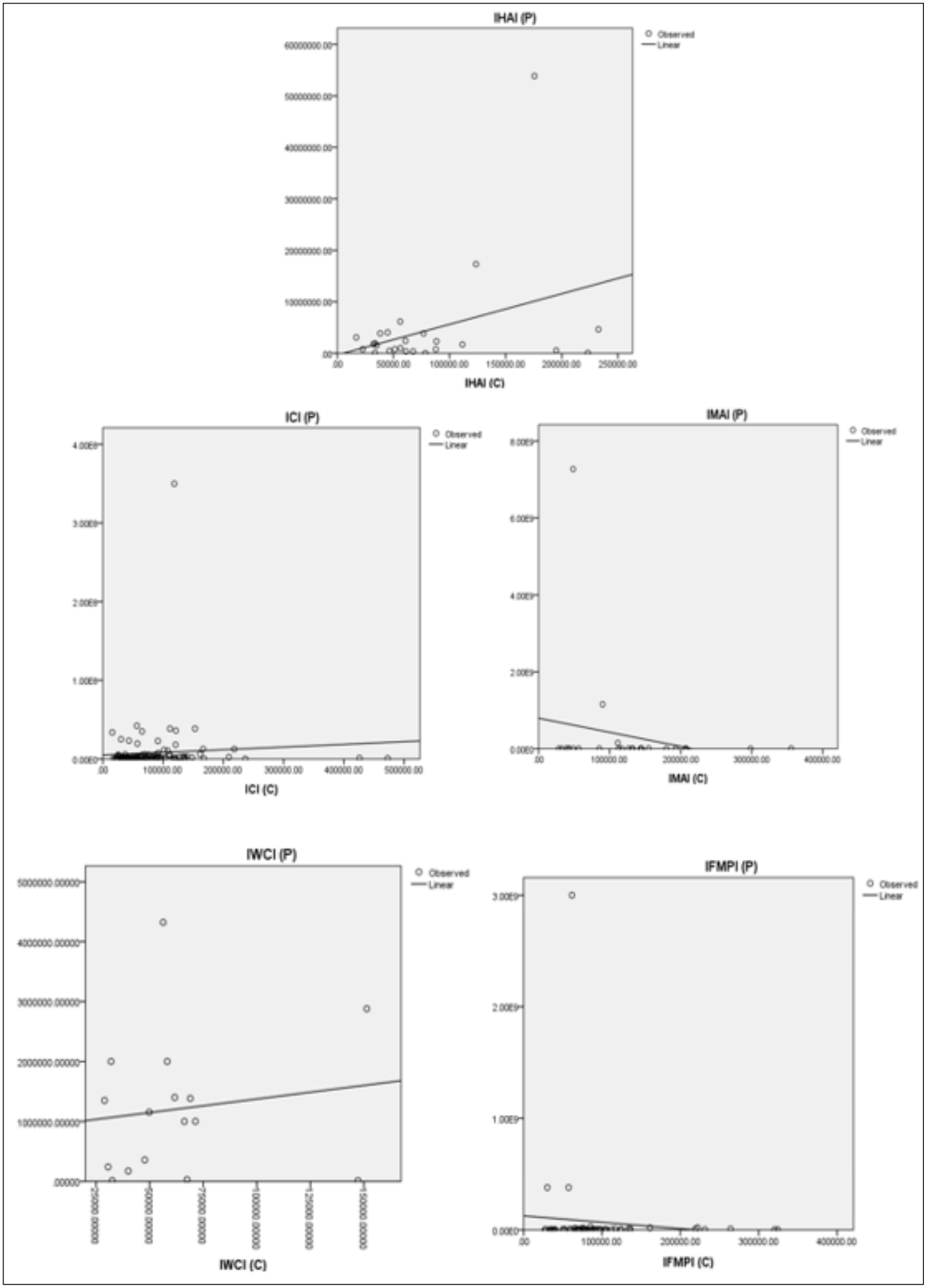

Figure 5b: The linear regression diagrams of cost/revenue analysis of industrial groups.
Source: Author, (2021).

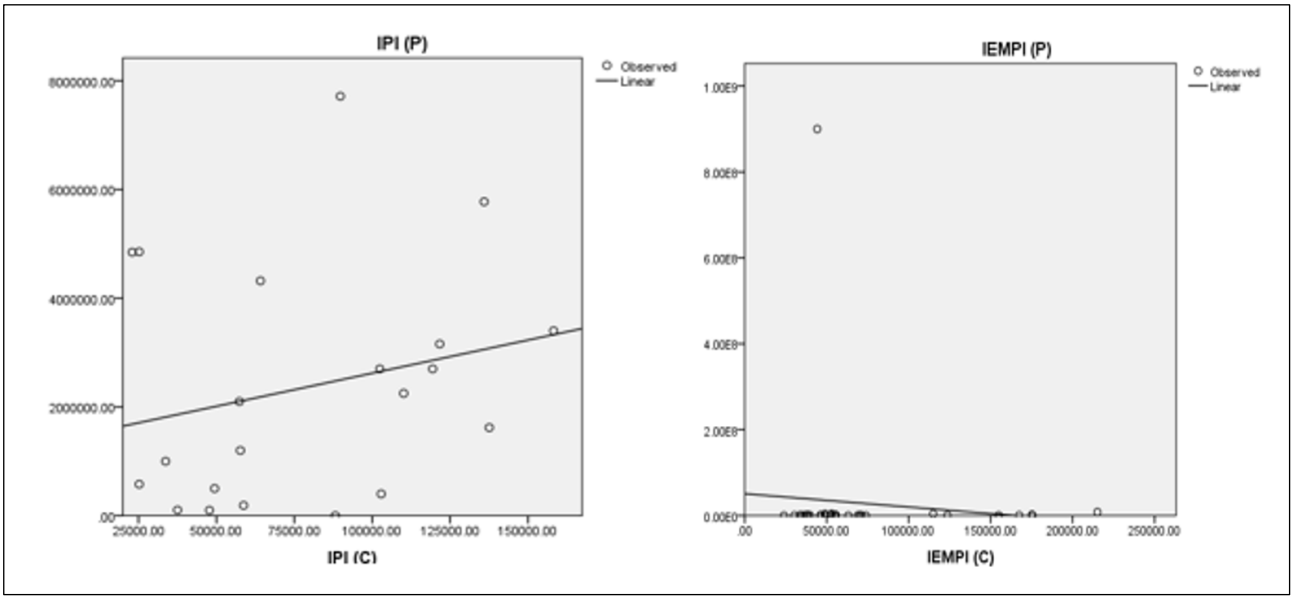

Figure 5c: The linear regression diagrams of cost/revenue analysis of industrial groups.
Source: Author, (2021).

IV.2 STATISTICAL ANALYSIS

The null hypothesis test summary had shown that the distribution of all cost/revenue analysis in all industrial groups is normal via one-sample Kolmogorov Simonov test. So, it has resulted in the rejection of the null hypothesis in six analyses of industrial groups such as ITLI (P), IHAI (P), IMAI (P), IEMPI (P), IFMPI (P), and ICI (P). But keeping the same data in the null hypothesis test summary had proved the rejection of the null hypothesis in both analyses of cost/revenue (in all industrial groups) via related samples Friedman's two-way analysis of variance by ranks. By the way, the distribution of all industrial groups had appeared the same. The t-test analysis has manifested significant differences around (p-value ≤ 0.001, 0.047, 0.014) in the analysis of cost/revenue for IWCI (P), IHAI (P), and ICI (P) among all industrial groups respectively. Using paired sample test analysis also presented the significant differences among IWCI (P, C), IHAI (P, C), and ICI (P, C) around (p-value ≤ 0.001, 0.050, 0.016) respectively.

The mean ranks (weights) by Friedman test had released values of 12.81, 10.34, 11.75, 11.78, 12.56, 8.88, 13.50, 11.25, 7.25, 4.25, 5.31, 4, 6.69, 4.19, 6.69, and 4.75 for ITLI (P), IWCI (P), IPI (P), IHAI (P), IMAI (P), IEMPI (P), IFMPI (P), ICI (P), ITLI (C), IWCI (C), IPI (C), IHAI (C), IMAI (C), IEMPI (C), IFMPI (C), ICI (C) respectively. So the highest and lowest ranks were devoted to IFMPI (P) and IHAI (C) respectively. The values of weights estimated by the Friedman test were used to find the efficiency ranks using the DEA model. Then the efficiency scores were displayed by scatter plot according to Figure 6.

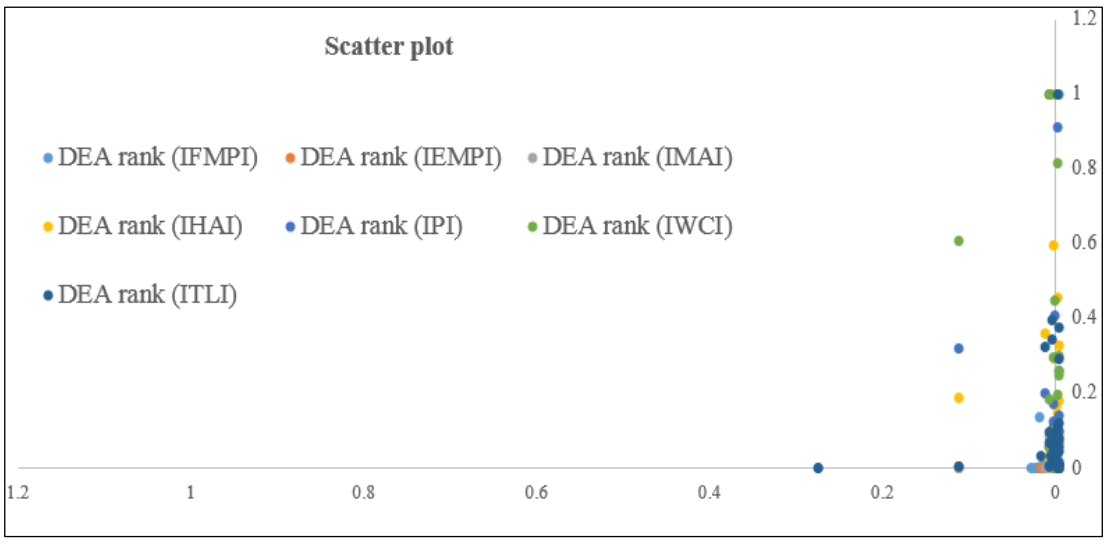

Figure 6: The scatter plot of DEA ranks of industrial groups.
Source: Author, (2021).

To calculate DEA has used the weights obtained from the Friedman test. The division of weighted output variable (products of industries in currency) to weighted input variable (cost of energy stream) was released the efficiency score according to scatter plot in Figure 6. Figure 6 proves that the most efficiency scores were scattered between a range of 0 to 0.4. The values of DEA ranks for ICI did not appear in the plot due to negligible values in the industrial group. Figure 7 represents the sequence chart for values of ranks of industrial groups in the DEA model.

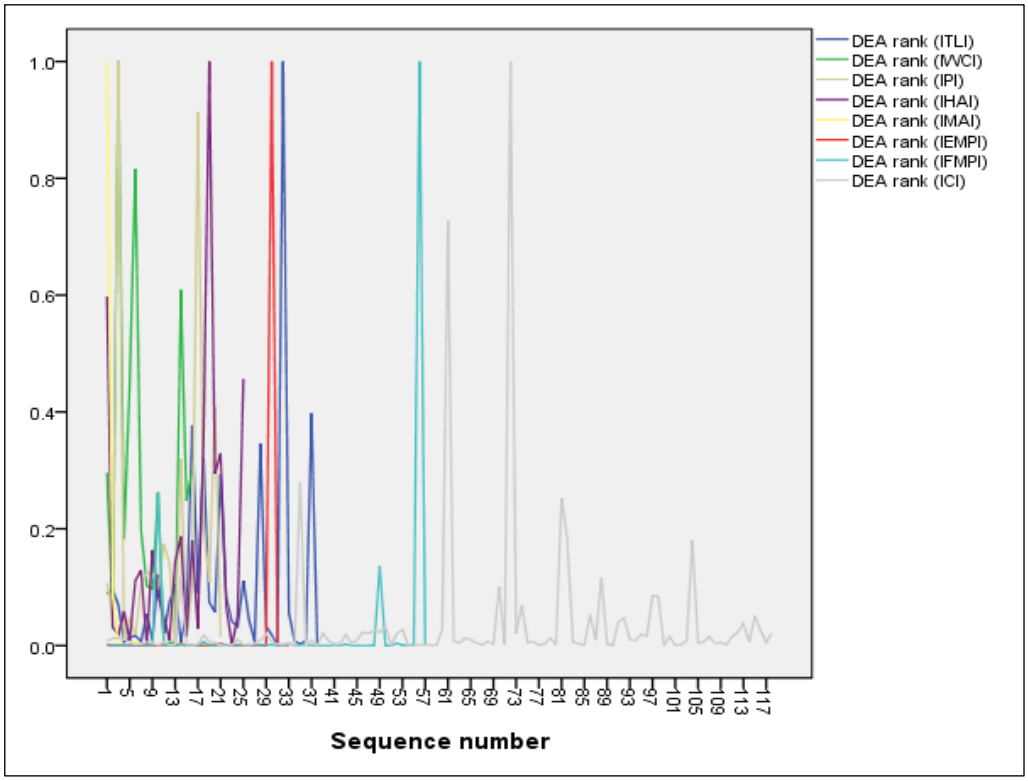

Figure 7: Sequence chart for values of ranks in DEA model.
Source: Author, (2021).

The application of sequence number refers to present interaction among various groups of alternatives in development stages when they are discussed in scenarios. The highest functionality emerges in linear expansion. The highest correlation came into view among values by both DEA rank values of IWCI and IPI with a quantity of around 0.632. The paired samples test had shown a significant difference (p-values ≤ 0.014) among 8 industrial groups. The significance had appeared with (p-value $\leq$ 0.001, 0.004) for industrial groups of ITLI, IWCI, IHAI, ICI, and IPI via t-test analysis respectively. Figure 8 portrays the scatter plot of cost versus revenue.

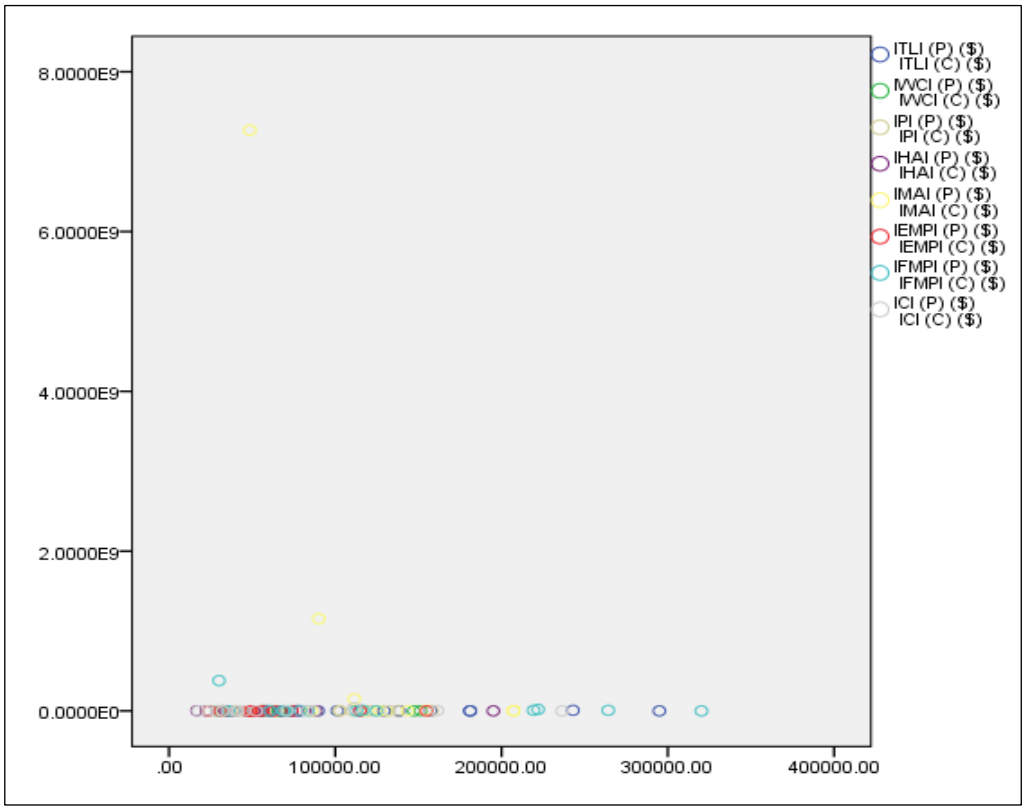

Figure 8: The scatter plot of cost versus revenue.
Source: Author, (2021).

According to Figure 8, the scatter plot drawn among data of cost/revenue analysis of all industrial groups is in a linear distribution. The findings prove the complete linear expansion and development of data in the scatter plot. Figure 9 presents the error bar plot of cost/revenue.

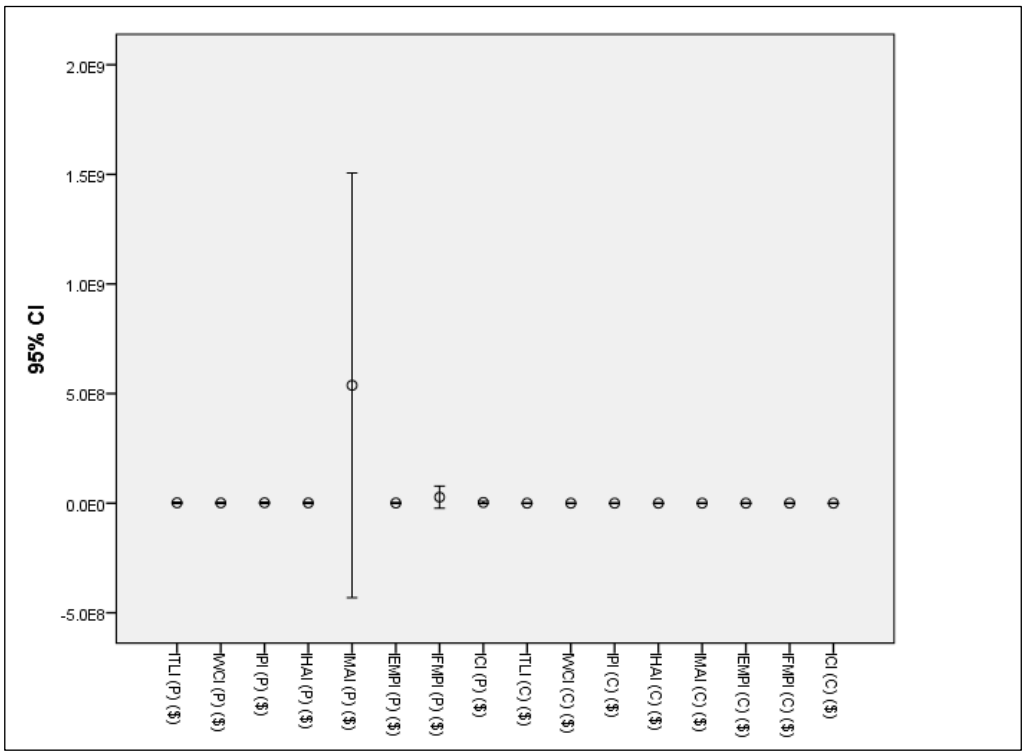

Figure 9: The error bar plot of costs/revenue for industrial groups.
Source: Author, (2021).

The findings in figure 9 represent that there is no scatted data out of mean of data except in the data of IMAI (P) ($). It means a wide distribution among data of IMAI (P) ($) with low and high quantities scattered.

V. CONCLUSION

The present research introduced linear functions for each industrial group that can be expanded via Kaab Douglas modeling. The results of regression analysis via SPSS software occurred in full agreement and compliance with results obtained by empirical equations and linear flow diagrams deployed in the output of SPSS software. It was not observed significant differences among cost/revenue analysis of 8 groups of industrial projects. The good compliance of cost/revenue analysis came into view with linear progress in the scatter plot introduced. The expansion of the sequence number diagram followed a regular development in scenarios but not in a linear trend. The aggregation of DEA ranks of industrial groups had happened around a linear layout. The findings of the DEA model were displayed by scatter plot were a benchmarking level for this kind of assessment as it is for industrial projects once before complete construction. Future research orientation can be directed towards adding some new dependent and independent variables individually or mixed with financial ratio analysis to further processing the data. New types of DEA models united with the various weighing systems are another alternatives in further processing data.

VI. AUTHOR'S CONTRIBUTION

Conceptualization: Malek Hassanpour.
Methodology: Malek Hassanpour.
Investigation: Malek Hassanpour.
Discussion of results: Malek Hassanpour.
Writing – Original Draft: Malek Hassanpour.
Writing – Review and Editing: Malek Hassanpour.
Resources: Malek Hassanpour.
Supervision: Malek Hassanpour.
Approval of the final text: Malek Hassanpour.

VII. ACKNOWLEDGMENT

This research was conducted as part of the corresponding author's Ph.D. research work (Entitled; Evaluation of 405 Iranian Industries). The tabulated data were picked up from the screening step of project identification in environmental impact assessment. The author thanked colleagues and evaluators of both the Iranian environment protection agency and Iranian industries organization for the data assessed.

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IX. APPENDIX

Section "IV.1 IRANIAN INDUSTRIES"

IV.1.1 Iranian Textile and Leather Industries (ITLI)

ITLI comprised 38 various kinds of industries such as (1) Bag (NC=120000 No), (2) Carpet thread (NC=600t), (3) Cotton spinning (NC=1400t), (4) Jeans (NC=81000 No), (5) Leather artifacts (NC=90000 No), (6) Leather shoes (NC=135000 pairs), (7) Quilts, mattresses and pillows (NC=85000 No), (8) Raw leather (NC=618300 Ft^2), (9) Sewing and embroidery thread (NC=150t), (10) Spinning (NC=2500t), (11) Tannery (NC= 45500 skin covers+214.988t), (12) Underwear (embroidered series) (NC=350000 No), (13) Wicker oil burner (NC=620000 No), (14) Spinning the woolen yarn (NC= 306t), (15) Knitting cotton, synthetic fibers (NC=1000000 m^2), (16) Band and medical wound texture gas (NC= 1407659 No), (17) Rachel Curtain Fabrics (NC=330000 m), (18) Mink blankets (NC=500000 m^2), (19) Woolen blanket (NC=131500 No), (20) Spinning wool (NC=263.5t), (21) Palash and blanket (NC=2250000 m^2), (22) Winter clothing (NC=137500 No), (23) Clothing (shirt) (NC=135000 No), (24) Knitted Tricot (NC=130t), (25) Fishing net (NC=270t), (26) Stinger mosquito net (NC=300000 m^2), (27) Socks (NC=243000 jeans), (28) Crust leather (NC=2398000 Ft^2), (29) Cotton gloves (NC= 62400 pair), (30) Leather gloves (NC=70000 pair), (31) Wipes (Cleansing) (NC=4000 yard), (32) Ribbon Weaving (NC=3000000 m), (33) Carpet coverage (NC=54000 No), (34) Spinning silk (NC=102.8t), (35) Zipper (NC=3000000 m), (36) Animal skin pickle (NC= 200000 No), (37) Raw silk fabrics (NC= 330000 m), (38) Layer on diapers and sanitary pads (NC=8750 m^2).

IV.1.2 Iranian Household Appliance Industries (IHAI)

Types of IHAI based on NC comprised 25 industries such as Earphone (20000 No) (1), Hairdryer Handheld (100000 No) (2), Household ventilator (100000 No) (3), Household crystal containers (500t) (4), Pyrex glass containers (100000 No) (5), Semi-Automatic Washing Machine (10000 No) (6), Tea flask (100000 No) (7), Teflon containers (211t) (8), Water Cooler (20000 No) (9), Gas oven (12000 No) (10), Steam iron (20000 No) (11), Juicer (48000 No) (12), Electrical miller and mixer (20000 No) (13), Steam cooked double glazed steel (50000 No) (14), Electrical stove (30000 No) (15), Gas stove (20000 No) (16), Semi-automatic electric cooker (20000 No) (17), Ceiling fan (assembly) (50000 No) (18), Desktop fan (100000 No) (19), Household vacuum cleaner (assembly) (30000 No) (20), Meat grinders (assembled) (40000 No) (21), Chinese dishes (800t) (22), Chinese decorative dishes (500t) (23), Samovar (electric and oil) (82500 No) (24), Household refrigerator (15000 No) (25).

IV.1.3 Iranian Chemical Industries (ICI)

Types of ICI based on NC comprised 118 industries such as Animal Feed from Agricultural Waste (NC=10000t) (1), Animal drugs (NC= 500t+50000 No) (2), Ammonium Chloride (NC=1500t+2000t $NaSO_4$) (3), Antifreeze (NC=960 m^3) (4), Baby carriage (NC= 25000 No) (5), Blood Powder (NC=500t) (6), Buds of different seeds (NC=150t) (7), Barium carbonate (NC=3000t+1187t solfide sodium) (8), Braided wax plates (NC= 130t) (9), Calcium carbonate (light and active) (NC= 19200t) (10), Calcium carbide (NC=1350t) (11), Clothes hanger and pin (NC=504000 No) (12), Disinfectants (NC=900000 L) (13), Fiberglass boat (NC=5000 No) (14), Fiberglass pieces (NC=100t) (15), Fragrant aromas (NC=130t) (16), Glass- strip away (NC=650t) (17), Glucose from starch (NC=2160t) (18), Healthy Soap (NC=1090t) (19), Helmet (NC=65000 No) (20), High pressure hoses (NC=240t) (21), Household Lighting Candles (NC=7560 No) (22), Insecticide coil (NC=50000 No) (23), Isolator (NC=2000000 m^2) (24), Kitchen lighter (NC=100000 No) (25), Knife with injectable handle (NC=800000 No) (26), Adhesive plaster (NC=1700t) (27), Lining materials and insulating gas pipes (NC=3500t) (28), Liquid fertilizer (NC=1250t) (29), Matches (NC= 7776000 No) (30), Mechanical disposable lighters (5000000 No) (31), Medicinal glycerin (NC=1500t) (32), Melamine dishes (NC=1000t) (33), Metal flexible hose pipes (NC=309t) (34), Nitrobenzene (NC=1620t) (35), Potassium chloride (NC=400t) (36), Printing ink (NC=500t) (37), Rubber parts (NC= 25t) (38), Shoe wax (NC=3750000 No) (39), Soft polyurethane foam (NC=6000t) (40), Starch from wheat (NC=1580t) (41), Throw-away crockery (NC=962.35t) (42), Tooth brush (NC=5000000 No) (43), Detergents (Shampoo, etc) (NC=1080t) (44), Welding glasses (NC=50000 No) (45), Insecticide spray containing flavoring materials (NC=2700000 No) (46), Acetic acid ester (NC=1200t) (47), Phthalic anodic esters (NC=970t) (48), Calcium stearates (NC=2592t) (49), Boric acid (2700t + 3600t $NaSO_4$) (50), Hydrochloric acid (NC=3000t) (51), Chromic acid (270t) (52), Zinc oxide (500t+887.5t $NaSO_4$) (53), Oxygen; Ar and N_2 (NC=3643200 m^3) (54), Alcohol from beet molasses (NC=5000 No) (55), Types of gaskets (200t) (56), Acid and distilled water (NC=1725 m^3) (57), Rubber plugs (NC=25t) (58), Sprinkler (NC=81000 No) (59), Sodium hypochlorite (NC= 837900 gallon) (60), Recycling silver from film and its solution (NC=40.40t) (61), Industrial Paraffin (NC=3000t) (62), Raw silk fabrics (NC=330000 m) (63), Pacifier (NC=300000 No) (64), Unsaturated polyester (NC=1000t) (65), Bleach powder (NC=2700t) (66), Electrostatic coating (NC=81000 m^2) (67), Tri-calcium phosphate (NC=15000t) (68), Hub and rubber ball (NC=360000 No) (69), Synthetic leather of polyurethane (NC=12000000 m^2) (70), Gum stick (NC=200000 No) (71), Wood gum (polyvinyl acetate) (NC=7000t) (72), Shoe adhesive (NC=1800t) (73), Medical and sanitary adhesives (NC=45600000 No) (74), Toothpastes and health cosmetics (NC=800t) (75), Hexagon pen (NC=24000000 NO) (76), Pen (NC=2000000 No) (77), Plugs and screws head (NC=800000 No) (78), Diethyl ether (NC=100t) (79), CO_2 (NC=1800t) (80), Epoxy resin (NC=5475t) (81), Alkyd resin (NC=17500t) (82), Bakelite resin (NC=2000t) (83), Resin; urea formaldehyde gum (NC=1000t) (84), Dyeing and printing of fabrics (NC=2000000 m^2) (85), Transformer Oil (NC= 8100 m^3) (86), Used motor oil and grease recycling (NC=3000 m^3 + 750t , grease) (87), Drying oils (500t+1000t wastes) (88), Rubber profiles (200t) (89), Insecticide spray (NC=2700 No) (90), Rubber glass head (NC=3240000 No) (91), Canopy (NC=1540t) (92), Agricultural liquid pesticides, Butachlor (NC=750t) (93), Zinc sulfate (NC=3400t) (94), Sodium sulfate (NC=25000t) (95), Alkyl benzene sulphonation (NC=5000t) (96), Sodium sulfite (NC=5000t) (97), Sodium sulfide (NC=3000t) (98), Sodium silicate (NC=3000t) (99), Drip irrigation system (NC= 1000 No+383.9t) (100), Glasses frames (NC=80000 No) (101), Oil filter recycling (NC=2000t) (102), Thermos and ice box (NC= 150000 No) (103), Industrial and consumable taps (NC=3000000 No) (104), Teflon strips (NC=12393000 No) (105), Hair comb (NC=1000000 No) (106), Glass artifacts (NC=1787.5t) (107), Industrial crystals (NC=1000t) (108), Spectacle glass (NC=500000 pairs) (109), Chinese insulator (NC=730t) (110), Ceramic magnet (NC=869565 m) (111), Tape (for electronic equipment) (NC=3370000 No) (112), Fruit concentrate (NC= 19820t) (113), Shuttered windows (NC=330000 No) (114), Hygiene products made of artificial stone (NC=4500t) (115), Household, industrial and medical gloves (NC=12600000 pair) (116), Metal octet of Ca, Zn, Mn, Co (NC=1000t) (117), Refrigerator above zero for crops (NC=5000t) (118).

IV.1.4 Iranian Mining and Aggregate Industries (IMAI)

IMAI encompassed 26 various types of industries as **(1)** Bitumen blown 90/15 (NC= 27000t), (2) Building plaster (NC=150000t), (3) Ceramic dishes (NC=250t), (4) Ceramic tiles (NC= 600000 m^2), (5) Floor Tiles (NC=600000 m^2), (6) Glazed tile and ceramic (NC=150000t), (7) Gypsum (NC= 500 packages), (8) Industrial ceramic parts (NC=300t), (9) Ceramic brick (NC=30000000 moulds), (10) Firebrick (NC=10000t), (11) Façade brick (NC=30000 pieces), (12) Semi-automatic brick (NC=30000000 moulds), (13) Hot asphalt (NC=135000t), (14) Building lime (NC=75000t), (15) Orthopedic bandage (NC=1300000 rolls), (16) Rock wool (NC=1500t), (17) Glass wool (NC= 7000t), (18) Stone powder and mosaic (NC= 18000t), (19) Precast pressed beam and concrete pile (NC=15000 pieces), (20) Gypsum prefabricated walls (NC=356400 m^2), (21) Prefabricated wooden wall by wood powder (NC=15000 m^3), (22) Cutting granite stone (NC=30000 m^2), (23) Grindstone (NC= 500t), (24) Broken stone and debris washed (NC=200000t) (25) Mineral powders (NC=200000t), (26) Cement asbestos tube (NC=500t).

IV.1.5 Iranian Wood and Cellulose Industries (IWCI)

IWCI included 16 types of industries based on confirmation information in IIO such as (1) Cooler bangs (NC=1400t), (2) Carton (NC=1500t), (3) Industrial drying wood (NC= 7500t), (4) Hydrophilic cotton (NC=400t), (5) Sheet rolls and packing (NC= 1000t), (6) Wax paper (NC= 1000t), (7) Booklet (NC=2600000 No), (8) Hasp (NC=120000 No), (9) Decal (NC=6250000 piece), (10) Multilayer paper bags (NC= 12000000 No), (11) Row board (NC=12000 Piece), (12) Wooden and paper disposable products (NC=7565000t), (13) Wooden pencil (NC=324000 No), (14) Carbon paper (NC= 450000 package), (15) Parquet (NC=150000 m+150000 m^2), (16) Sandpaper (NC= 2000000 m^2).

IV.1.6 Iranian Food Manufacturing Industries (IFMPI)

IFI comprised many of confirmed industries in the industries organization in Iran such as (1) Barley water (NC=30000000 bottles), (2) Cake and muffins (NC=650 kg), (3) Canned Beans and Caviar Eggplant (NC=3700 No), (4) Canned fish (tuna) (NC=11000 No+1056t), (5) Canned meat (NC=6500000 bottles), (6) Canned mushrooms (NC=2800000 bottles), (7) Compote (NC=8000000 No), (8) Concentrated fructose syrup of corn sugar (NC=2400t), (9) Corn Flakes (NC= 600t), (10) Fantasy Bread (NC=1000000t), (11) Fish food (NC= 12000 kg), (12) Glucose from starch (NC=2160t), (13) Hamburger (NC=1000t), (14) Margarine (NC= 12000t), (15) Milk, yogurt and pasteurized cream (NC=8255t), (16) Date sap (NC=2000t), (17)

Potatoe based foods (NC=800t), (18) Poultry slaughterhouse (NC=3780000 No), (19) Iodinized salt (NC=10000t), (20) Starch from wheat (NC=1580t), (21) Treating fish (NC=1000t), (22) Wafer chocolate (NC=500t), (23) Alcohol from beet molasses (NC= 1500000 No), (24) Mineral water (NC= 12000t), (25) Wheat flour (NC=27000t), (26) Pistachio packaging (NC=1269.5t), (27) Packing grains; peeling off barley (NC= 2430t), (28) Spice Packing (NC=250t), (29) Fruit packaging (NC=10000t), (30) Wafer biscuits (NC=1000t), (31) Corn grits (NC= 5800t), (32) Biscuit (NC=1000t), (33) Soya protein (NC=1900t), (34) Mushroom cultivation (NC=600t), (35) Cheese from fresh milk (NC= 1500t), (36) Cheese Pizza (NC=1500t), (37) Meat and Olive Industrial Powder (NC= 545.5t), (38) Fish powder (NC= 500t), (39) Artificial sausage and sausage coating (NC=243t), (40) Preparation; packaging of honey (NC=24000 No), (41) Purification and packaging of salt (NC=21600t), (42) Cream dyed (NC= 1400t), (43) Dates and liquid sugar (NC=4680t), (44) Smoked fish (NC= 15t), (45) Tomato paste (NC=1500t), (46) Flour string (NC= 24192 No), (47) Olive oil (NC=280t), (48) Oil Seeds from Vegetable Seeds (except soya; olive) (NC=8000t), (49) Drying oils (NC= 1500t), (50) Dried vegetables (NC= 1412000 No), (51) Soya sauce (NC= 60000 barrels+72000 bottles), (52) Ketchup (NC= 16000t), (53) Food sauces (NC= 4451998 (bottles 300 g)+1250000 (bottles 120g)), (54) Raisin Packaging (NC= 1000t), (55) Dates packaging (NC= 400t), (56) Sausage (NC=1000000t), (57) Ice (NC= 12920t).

IV.1.7 Iranian Plastic Industries (IPI)

Types of IPI based on NC comprised 21 industries such as congressional sheets of PP (Polypropylene) and PS (Polystyrene) (2000 T (Ton)), (1), Flat sheets of PP and PS (1200t), (2), Plastic waste recycling (630t), (3), Plastic buttons (100t), (4), PVC (Polyvinylchloride) hose (500t), (5), Plastic rope (1000t), (6), PVC flooring (1700t), (7), PP bags (900t), (8), Plastic bags (1052.67t), (9), PE (Polyethylene) pipes and fittings (1500t), (10), PVC pipes and joints (1400t), (11), Plastic welding artifacts (1000000 No = Number), (12), Plastic bottle (18000 No), (13), PVC shoe bed (2160000 No), (14), Plastic Box (Fruit, Chilli) (246140 No), (15), Plastic flashlight (600000 No), (16), PVC gum (4854109 No), (17), Plastic shaver (75000000 No), (18), Cellular Plastic Sheets (385000 m2), (19), PVC film for agricultural use (21600000 m2), (20), Plastic products (175.26t+13580 rolls), (21).

IV.1.8 Iranian Electronic Products Manufacturing Industries (IEPMI)

Types of IEPMI based on NC comprised 33 industries such as Flux wire (NC=2000t) (1), Thermostat samovar (NC= 200 kg) (2), Automatic starter (NC=100000 NO) (3), Automotive starter (NC=20000 NO) (4), Automatic selector (NC=5400 NO) (5), Adapter (NC=100000 NO) (6), Ampere meter, voltmeter (NC=200000 NO) (7), Alarm (NC=100000 NO) (8), Desktop phone device (NC=20000 NO) (9), Electrical connector (NC=5000 NO) (10), Electro-Motor (NC=120000 NO) (11), Electronic thermostat (assembly) (NC=20000 NO) (12), Electronic laboratory devices (NC=10000 NO) (13), Electronic encoder lock (NC=100000 NO) (14), Electric key and socket (NC=500000 NO) (15), Soldering iron (NC=110000 NO) (16), Sockets and rods (NC=2000 NO) (17), Flashing device (NC=20000 NO) (18), Home electric drill (NC=10000 NO) (19), Household Emergency Light (NC=20000 NO) (20), Gas torch relay (NC=50000 NO) (21), Limit Switch (NC=70000 NO) (22), Moonlight ballast (NC= 200000 NO) (23), Moonlight Starter (NC=2000000 NO) (24), Paper loudspeakers (NC=500000 NO) (25), Projector and spotlight (NC=100000 NO) (26), Plugs and screws head (NC= 800000 NO) (27), Pocket radio (NC=40000 NO) (28), Trans-amplification (NC=100000 NO) (29), Trans moonlight (NC=450000000 NO) (30), Thermal relay (NC=60000 NO) (31), Coaxial cables (NC=408000 crank) (32), Electronic boards and printed circuits (NC=20000 m^2) (33).