

Regression analysis empowering export in Araz Free Zone

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Abstract: The main aim of this study is to empower the export in Free Aras Zone and identify the influential factors. In order to study the relationship between these variables and empowering the Free Aras Zone we did a survey study. The statistical population of this study includes the whole exporters of Free Aras Zone in 1387 from which we choose 148 people as samples. After interviewing and collecting the data, we analyzed them through SPSS software. The results of data analysis show that there is a significant correlation between strategies of service exports, overseas, amount of materials and equipments, ways of evaluation, export informing, advertisement, custom's regulations, being aware of bank systems and the international rules(independent variables) and empowering Free Aras Zone exports. Finally, after regression analysis of empowering the Free Aras Zone (as an index) with four variables was entered the regression model and could explain the 63% of changes in dependent variable empowering the exports in Aras Free Zone.

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Introduction and statement of problem

Jolfa Free Zone is a safe and secure place for exporting and retransmitting the goods. This zone is considered as the best place for transit and good clearance because it is located in autonomous republic of Nakhjavan, republic of Armanestan, Azerbaijan and also it is easily connected to Asian and European countries in specified situation with Iran. This zone having 20000m² the indoor warehouses, 12000 m² Hankar Hall, 17ketare storage container and also vast facilities such as insurance offices and banks made it a suitable place for businessmen and good transit firms for transmitting the imported and exported goods from this zone to the other parts of Iran and world. There are varieties of facilities such as indoor places as storehouse, vast railroads in the zone, large harbors, loading equipments, in this zone. There are the other equipments which will be set in near future. Now, there are 20 representatives and 67 international transportation firms and 6 national transportation institutions in Aras Free Zone. Iranian Foreign Trade System not only includes the private agencies but also it includes the state ones. Therefore, it is considered as a Guiding System. In order to understand the importance of foreign trade sector in economical process, we should pay attention to this fact that the whole development strategies, especially industrial development strategy, is considered as a suffix in trade: import displacement, export encouragement, export displacement, and so on,

directing the economical development strategy has affected foreign trade sector and is also affected this sector. In economical literature, there are three roles for foreign trade:

1. Foreign trade: following the other internal economical sectors development and growth
2. Foreign trade: the motivation and growth motor of the other internal and economical sectors
3. Foreign trade: making balance in the other economical sectors (Motavasseli, 1999:19).

Johnson (1977) pointed to the effects of training the ways of engaging in foreign trades and competitions. Flowi (2001) also points to the effects of capital importing on the growth through technology. Lee (1995) verifies the effects of international trade on growth through preparing the higher An intermediate inputs that provides the more research and training opportunities (quoted by: Farhadi, 2004:33-34). In 9th National Conference of Non- Oil Export Development, focusing on moving towards fundamental changes in economy and trade in Iran, there was a sharp look at different export and manufacture affaires in development programs. There were debates about global trade and globalization, export mutation strategy and electronic trade. In order to get a global status, there are some necessities such as applying the trade diplomacy, providing competition atmosphere in economical places and also offering some strategies which has much more importance. The other points which can help us include the expand research, training the managers of

economical estates and export-import agencies and especially training professional marketing and making big export development firms (Najafi, 2003).

Expanding export through increasing the level of efficiency and specialization in different production section, transferring the industries from non efficient and non commercial parts to commercial and productive parts, increasing the efficiency of production agencies, decreasing the costs etc. leads to economical growth and development of countries. In the way that in contemporary world, the developed countries are the main players of international trade (Sobhanallahi, 2003).

According to economical evidences and the present potentials of Free Aras Zone in different commercial areas, they show that this zone has higher capacity for offering export services. In order to empower this zone's capability in export, it is necessary to note the marketing management problems, goals and strategies of export, training and informing the key points about export capacities, electronic marketing and regulations of export in Free Aras Zone as dependent variables and were entered the model. They were influential in empowering the Aras Free Zone. In this paper we focus on this regression of this analysis.

Theoretical Framework

Each country adjusts the activities of foreign trade based on economical growth and development strategies. Then, they establish appropriate trade structure. Industrial development strategies of the whole developed countries were firstly supportive one. Though operating the different planned programs of importing replacement and increasing the capacity of national production during a specific period, the necessity of foreign goods will be limited. These actions are in contrast with classic economists' procedures such as Adam Smith. He believes that supportive policies are in contrast with Free Trade policies which are based on global competition. Supportive and encouragement aspect of new born industries are the most important characteristics of national tendencies in developing countries. However, the industrialization process of these countries could not accompany the strategies of developed countries and the prospective development policies. The main problems include establishing multiple and monopoly powers (through internal and external forces) which dominated the production of raw material and income circulation (Motavassoli, 1999).

Development strategies based on Outward-looking

This pattern has an influential role in foreign trade. The most important characteristic of this

strategy is its proportional advantage in producing goods in export section and price policies which reflects the global prices and also the deficiencies of national manufacture parts. The export parts are considered as directors of the other parts. The whole of these strategies have focused on expanding the industrial exports since 1960s. The administrative countries, through using the conditional import releasing, accepting the competitive currency price, motivating the export and accessing appropriate prices for economical production authorities are regulated in the way that they should be in harmony with potential or created opportunities of proportional advantages (Ibid, 1999).

Export Developing Policies

Experiences show that growth performance in export developing policies, in comparison with replacing strategies of export, was desirable. The new opportunities are the main factor of growth. New events and opportunities such as introducing the new products, introducing the new introduction methods, accessibility to sources of raw material of semi produced goods and also establishing new structures in industry (Farhadi, 2004).

Minor overseas services in export empowerment

Minor overseas services in international trade have increasing importance. It should be mentioned that most of firms and institutions use the other institution's services in international level and their goal market. It is usually done through ordering the foreign services or decreasing their own prices. There is no necessity for the buyer to be present there and visit the good. The minor overseas services include:

1. collecting necessary information for the customer
2. booking a hotel or hospital in a foreign country
3. using credit cards or license for using them
4. offering official services to far away clients
5. writing technical texts or doing the client's researches
6. designing the products for living abroad companies
7. preparing goods or equipments
8. offering the judicial services to foreign people who need them

Based on estimates made by Development and Economy Cooperation Organization, the developing countries can offer 438 billion dollar annually as overseas services. This is equal with 15% of non-member countries' (OECD) exports (Tabandeh, 2003: 500).

Considering the Market Management in Empowering

Market management includes some factors as follows:

1. getting enough information about market(using the market studies for getting information)
2. motivating and preparing a bed for market culture
3. control system of marketing
4. marketing, categorizing the market and strategic marketing
5. using strategies for improving the services
6. Market making, increasing the share of market through offering much more products to clients and attracting them which leads to competitive strategies for better communication in market and offering the goods (Tnabandeh, 2003:508)

7. **Assessing the Industrial Export Development Problems**

Generally, we can outline the problems and obstacles of industrial export in Iran as follows:

1. lack of enough understanding from export capability in Iran
2. low quality of industrial products
3. lack of sustainability in export regulations and regular changes in regulations related to export
4. lack of national commitment as a motivation motor for industrial exports in Iran
5. lots of unknown exporters in global consumption market
6. useless capacities of manufacture
7. having custom problems(internal and external)
8. problems related to exploiting the high level industries
9. lack of attention to industrial standards in production sections
10. lack of appropriate packaging in exporting the goods
11. deficiency in marketing system
12. problems international relations and economical boycotts
13. lack of specific strategy for industrial exports
14. differences between private and state section benefits
15. problems related to lack of sustainability in prices
16. lack of sustainability in economical indexes of country
17. low exploitation of human forces
18. lack of appropriate basic structures
19. problems related to industrial products for solving the internal needs
20. lack of using new And updated technologies

The other problems are as follows: burnout machines in production lines, lack of new and advanced machines, lack of modern technologies, lack of suitable packaging machines, and lack of

ability to replace the old machines with new ones(Eslami, 2003). Kagithani(2003) in his paper “numbers of estates and export subsidies policies” states that performing the export subsidies policies, appropriate from political view, can decrease the social welfare in comparison with free trade times. He believes that government does not try to maximize the social welfare but tries to maximize the poetical supports.

U. Ter Weng (2003) in his paper “competition for export subsidies and consensus on global trade organization” show that the exporters’ welfare increases if it is accompanied with the low costs of production. If the whole exporter countries support their products with subsidies, the world situation will be better.

Definition of variables

Dependent variable (empowerment): Lee (2001) considers empowerment as a basis for increasing the dialogue and critical thoughts of activity in small groups. He also states that permitting the activities such as moving beyond sharing, dividing and refining the thoughts, observing and dialogues are the main elements of empowerment which are measured with variables such as market management, training and informing, ability to know and analyze the international environment as independent variable and empowerment in analytical model.

Methodology

The research method is survey. According to measurement level of distance level, we use regression analysis (Sarmad et al, 2000). The statistical population included the whole exporters and the recorded companies in Jolfa Free Zone which have exported their goods since 2008. The sample involves 148 exporters. The measurement tool is questionnaire. Reliability of measurement tool is calculated through Cronbach Alpha Test. it was $\alpha = 0.801$ which sows the reliability of measurement tool.

Goodness of Fit in Multi regression Analysis

The regression analysis is a quantitative method which is used for finding out the changes between two or more variables. Regression analysis which is considered as a basis for many quantitative reasoning in social science is in fact a method for using many independent variables(x) for predicting the dependent variable(y).

That is, we predict the dependent variable through one or more independent variables (Sarmad et al., 2000: 227). The present study uses the multi regression analysis test for identifying predicting the influential factors in empowering this zone exports.

The regression model which is used for estimating the regression coefficients is a linear model. This model can be written as the following equation:

$$y = a + b_1x_1 + b_2x_2 + \dots b_k x_k + e$$

In this equation, the intercept is a, the regression coefficient is b and the prediction error is e. calculating a and b rates for each collection is done in

the way that the collection e^2 become the minimum on.

After getting these rates(a, b) we reach the linear

model as a regression model. In this equation y^2 is the predicted rate of y:

$$y' = a + b_1x_1 + b_2x_2 + \dots b_k x_k + e$$

The goodness of fit in models used for identifying the empowerment of this zone exports in regression model we used Stepwise Method. The goodness of fit model in determinant factors of this zone's export empowerment is achieved through the other variables in distance level.

First Model (Final): assessing the determinant factors of export empowerment in Free Aras Zone.

After regression analysis of export empowerment in Free Aras Zone with four variables, the results show that the predicting variables of this variable entered the regression model and could explain 63% of dependent variable (export empowerment in Free Aras Zone). In other words, 63% of dependent variable changes refer to independent variables (ARS=0.631). the other changes refer to unknown changes which are not entered in this study.

Table 4-72: the statistics of multi regression analysis and summary of goodness of fit regression model

Multiplier	0.799
R. Square	0.639
Adjusted R Square	0.631
Std. Error of the Estimate	12.9
Durbin Watson	1.76

Table 4-73: multivariable regression variance analysis

Sources of changes	Sum of squares	df	Square mean	F	Sig.
Regression effect	37209.436	3	12403.14	84.81	0.00
residuals	21058.810	144	146.242		
total	58268.246	147	-		

Table 4-74: statistics of the entered variables in goodness of fit regression in empowering the export in Free Aras Zone

variable	B	Std. B	Beta	T	Sig.
intercept	2.086	2.215	-	1.089	0.027
Export strategy	0.421	0.041	0.609	10.38	0.000
Being familiar with bank and monetary systems	0.166	0.030	0.292	5.475	0.000
Oversea services	0.108	0.047	0.142	2.314	0.022

According to the results of multiple regression analysis, export empowerment in this zone is as follows:

$$y' = a + b_1x_1 + b_2x_2 + \dots b_k x_k$$

Empowerment equals 2.411, export strategy equals 0.604, being familiar with monetary and bank system equals 0.292 and finally the oversea services equal 0.142.

Although the other variables are not present in the model, it does not mean that they are not good predictors, but it only means that the other variables do not have significant role in the model. The "export strategy" variable has the most effect in predicting the export empowerment.

Second Model: assessing the determining factors of market management capabilities in Free Aras Zone Exporting

After regression analysis of market management capabilities in Free Aras Zone Exporting, the results show that predictor variables of this variable entered the regression model and could explain 41% of dependent variable (market management capabilities in Free Aras Zone Exporting) changes(ARS= 0/416). The other changes refer to unknown factors which are not used in this study.

Table 4-75: the statistics of multi regression analysis and summary of goodness of fit regression model

Multiplier	0.651
R. Square	0.424
Adjusted R Square	0.416
Std. Error of the Estimate	17.60
Durbin Watson	1.81

Table 4-76: multivariable regression variance analysis

Sources of changes	Sum of squares	df	Square mean	F	Sig.
Regression effect	33035.424	3	16517.712	53.299	0.00
residuals	44936.468	144	309.907		
total	77971.892	147	=		

Table 4-77 statistics of the entered variables in goodness of fit regression in empowering the export in Free Aras Zone

variable	B	Std. B	Beta	T	Sig.
intercept	10.929	3.681	-	2.969	0.003
Oversea services	0.542	0.056	0.617	9.741	0.000
Exporting information	0.122	0.50	0.155	2.451	0.015

According to results of multiple regression analysis, equation of predicting the market management capabilities in this zone is as follows: Market management empowerment = 10.922, oversea services = 0.617, exporting information = 0.155. Although the other variables are not present in the model, it does not mean that they are not good predictors. However, it means that those variables do not have a significant role in the model. Among the remaining variables in the model, two “oversea services” variable has the most effect in predicting the market management capabilities.

Model three: assessing the determining factors of market management capabilities in Free Aras Zone Exporting

After regression analysis of export training as one of the export empowerment variables in Free Aras Zone, the results show that predicting variables of this variable in regression model could explain 53% of dependent variable (training export in Free Aras Zone)(ARS=0.535). The other changes refer to unknown changes which are not entered in this study.

Table 4-78: the statistics of multi regression analysis and summary of goodness of fit regression model

Multiplier	0.738
R. Square	0.546
Adjusted R Square	0.535
Std. Error of the Estimate	19.52
Durbin Watson	1.86

Table 4-79: multivariable regression variance analysis

Sources of changes	Sum of squares	df	Square mean	F	Sig.
Regression effect	65637.121	3	21879.040	57.419	0.000
residuals	54870.427	144	381.045		
total	120507.549	147	=		

Table 4-80: statistics of the entered variables in goodness of fit regression in empowering the export in Free Aras Zone

variable	B	Std. B	Beta	T	Sig.
intercept	-	3.575	-	-	0.040
Export strategies	0.57	0.065	0.570	8.728	0.000
Being familiar with monetary and bank system	0.18	0.049	0.232	3.877	0.000
Oversea services	0.15	0.075	0.143	2.080	0.039

According to the results of multiple regression analysis, the predicting equation of export training in this zone will be as follows:

Export training= 10.384, export strategies= 0.570, being familiar with monetary and bank systems= 0.232, oversea services= 0.143. Although the other variables are absent in the model, it does not mean that they are not good predictors. However, it means that those variables do not have a significant role in the model. Among three variables, only “export strategies” variable had the highest effect in predicting the export training rate.

Model 4: assessing the identifying factors of Free Aras Zone participation in export

After regression analysis of Free Aras Zone participation in export as one of the empowerment variables, we came to this result that the predicting variables are entered the regression model and could explain 27% of dependent variable changes (Free Aras Zone participation in export) (ARS=0.273). The other changes refer to the unknown reasons which are not studied in this research.

Table 4-72: the statistics of multi regression analysis and summary of goodness of fit regression model

Multiplier	0.573
R. Square	0.288
Adjusted R Square	0.273
Std. Error of the Estimate	23.37
Durbin Watson	1.86

Table 4-73: multivariable regression variance analysis

Sources of changes	Sum of squares	df	Square mean	F	Sig.
Regression effect	31872.241	3	10624.08	19.44	0.000
residuals	78682.024	144	546.4		
total	110554.265	147	=		

Table 4-74: statistics of the entered variables in goodness of fit regression in empowering the export in Free Aras Zone

variable	B	Std. B	Beta	T	Sig.
intercept	28.538	8.692	-	3.283	0.001
Export strategies	0.360	0.070	0.375	5.162	0.000
Being familiar with monetary and bank system	0.213	0.058	0.273	3.685	0.000
Oversea services	-0.312	0.108	-	-	0.005

According to multiple regression analysis results, predicting equation of export training in this zone will be as follows:

Free Aras Zone participation in export= 28.538,

export strategies=0.375, being familiar with monetary and bank systems= -0.273, transportation costs=0.214. The other variables are not present in the model and it does not mean that they are not good predictors. Instead, it means that those variables do not have a significant role in the model. Among three variables, "export strategy" variable has the most effect of predicting the Free Aras Zone participation in export.

Model 5: assessing the determining factors in competition power of Free Aras Zone

After regression analysis of competition power in Free Aras Zone, the results show that the predicting variables are entered the regression model and could explain 55% of dependent variable changes (competition power of Free Aras Zone). In other words, 55% of dependent variable changes result from independent variables (ARS= 0.552).

The other changes refer to unknown factors which are not studied in this paper. The results of variance analysis in goodness of fit model predict and explain the effects of dependent variable (competition power of Free Aras Zone). In other words, explanation model is significant based on variance analysis results.

Table 4-72: the statistics of multi regression analysis and summary of goodness of fit regression model

Multiplier	0.747
R. Square	0.558
Adjusted R Square	0.552
Std. Error of the Estimate	17.00
Durbin Watson	2.19

Table 4-73: multivariable regression variance analysis

Sources of changes	Sum of squares	df	Square mean	F	Sig.
Regression effect	52934.271	3	26467.136	91.524	0.000
residuals	41931.649	144	289.184		
total	94865.921	147	-		

Table 4-74: statistics of the entered variables in goodness of fit regression in empowering the export in Free Aras Zone

variable	B	Std. B	Beta	T	Sig.
intercept	-1.890	3.108	-	-0.608	0.544
Export strategies	0.565	0.050	0.636	11.397	0.000
Being familiar with monetary and bank system	0.224	0.040	0.309	5.540	0.015

According to multiple regression analysis, predicting equation of competition power in Free Aras Zone will be as follows:

Competition power of Free Aras Zone= 1.890, export strategy=0.636, Being familiar with monetary and bank system= 0.309

Among these variables, "export strategy" had the highest effect in predicting the competition power of Free Aras Zone.

Practical suggestions

- Founding information and export center which facilitates the trade affairs, giving sanctions, supporting the credits in, monetary and bank system and also offering the principles and the regulations of international trades in this zone.
- Holding international fairs of company and manufacturer's products. It helps the analysis of international environment which involves the cultural, economical, political, social and geographical environment, allocating a judicial reference for Iranian Company contracts with their foreign counterparts (companies which offer their own services).
- Codification of development strategies and economical empowerment based on protectionism for reducing the production costs along with the export goals such as energy, transportation etc. It is also done based on the 4th plan goals especially the new born industries and companies which have increasing effect on export empowerment of this zone.
- Offering the side oversea services about empowering the export. In the way that, for ordering services, those companies and institutions can use the other institution's services in international level in goal markets. It also helps them to decrease their costs.
- Codification of zone export strategies with the help of exporters, authorities, and managers (for identifying the opportunities and threats in the zone, long run, short run planes for export and identifying ways for export goals).
- Establishing a center for giving information and counseling about the export, international transportation affairs, informing people through the mass media (radio, TV, internet, websites etc.).

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