

## **Determinants of Leather Goods Exports: A Case of Pakistan**

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### **Abstract**

*This paper attempts to examine the impact of major variables affecting export performance of leather goods from Pakistan using primary data source. The exporters from Punjab province were taken as the sampling frame as they share almost 90 percent of total leather exports from Pakistan. In Punjab, leather production and export facilities are primarily located in district Sialkot and Kasur. A representative sample of 40 leather exporters was selected purposively from total population of leather exporters in these districts. The impact of major variables on export of leather goods i.e. jackets was explored for the two main markets viz. USA and Germany by employing double log form of regression analysis. In case of the USA market, value of adjusted  $R^2$  was 0.72 whereas the  $F$ -value was 15.40. The estimates of regression analysis revealed that experience and education of exporters, purchase price of raw material and ISO certification 9000 were the significant variables whereas marketing cost and energy crises showed insignificant impact on leather exports from Pakistan to the USA market. On the other hand, for the German market, value of adjusted  $R^2$  was 0.74 whereas the  $F$ -value was 16.73. Experience of exporters, purchase price and energy crises were the significant variables whereas education of exporters, marketing cost and ISO certification showed insignificant impact.*

**Key Words:** Leather exports, Regression, ISO Certification, energy crises.

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## **1. Introduction**

The leather sector is Pakistan's second most dynamic sector after textiles. It contributes 5 percent to manufacturing GDP, about 7 percent to export earnings and provides employment to more than 200,000 workers (GOP, 2011). The leather industry consists of six sub-sectors namely, tanning, leather footwear, leather garments, leather gloves, leather shoe uppers and leather goods. Leather and leather products industry is concentrated mainly at Karachi, Sialkot, Kasur and Lahore. More than 2500 tanneries and footwear manufacturing units are located in Karachi, Lahore, Sialkot and Kasur (Mehmood, 2008). Pakistan's leather industry is export oriented, as 90 percent of the leather produced is exported abroad either in the form of finished leather or leather products. This sector is one of the established indigenous manufacturing sectors that have developed reasonably well overtime. Leather exports have increased at an average rate of 11 percent per annum.

Pakistan is well known globally for high quality and wide-range of leather products i.e. finished leather, garments and gloves (working and industrial) etc. However Pakistan's contribution to leather goods (hand bags, purses, suitcases, key chains, belts etc.) and footwear export in the international market is small mainly because the former sub sector is least developed while the market for footwear is domestic market oriented (Syed, 2009). Some of the leading importers of Pakistan's leather include USA (10.69%), Germany (9.33%), UK (7.35%), China (7.1%) and Italy (6.54%) (Industrial Information Network, 2010).

Although Pakistan imports raw material and related products from the developing countries, it exports value added products to developed countries like USA and Germany. Imports of raw leather are mostly made from Saudi Arabia, China, Kenya, Sudan and Tanzania, of these Saudi Arabia and China have a major share in the supply of raw leather to Pakistan (Haidri, 2010).

Export of leather products has emerged as a lucrative business as these

products fetch premium prices in the international markets. Though this industry is expanding in Pakistan, it is also faced with many challenges. For example, consistent supply of raw material has become a major problem. The traditional system of slaughtering in Pakistan produces low quality skins and hides which necessitates import of good quality raw material to produce excellent leather products. Increasing cost and lack of compliance to international standards are some other challenges to leather industry in Pakistan. Current energy crisis is also hitting the industrial sector in Pakistan including the leather industry. This situation provides an opportunity to investigate the current dynamics of export of leather goods to developed countries and evaluate the impact of major determinants of leather exports.

## **2. Literature Review**

While reviewing studies on export of agricultural commodities in general and leather in particular limited and scant availability of literature delineate the effect of major variables affecting leather exports in Pakistan. There is however some relevant literature available regarding leather exporting countries.

There is a continuous shift of leather, footwear and leather goods production from developed to developing countries mainly due to price competitiveness which creates an opportunity for these countries (Sharif and Mainuddin, 2003). As such developing countries are trying to increase their capacity in the production and export of leather goods. One such country is Turkey where business technologies, marketing policies and leather production have improved the business opportunities for leather goods (Yamamoto, 2005). In addition to the identification of success factors, Jordaan and Eita (2007) analyzed the determinants of South African exports of raw hides/skins (other than fur skins) and leathers. They found that importing country's GDP, population, infrastructure and regional trade agreements were the main determinants of leather exports. Similarly, Asgedom (2008) found that Ethiopian leather exports were influenced by the world market unit price/value of exports and the local real exchange rate in

the long run whereas in the short run, the domestic consumption pressure and world supplies from major exporters were the important determinants of leather exports. The expanding leather business is not independent of global changes, in this context, Bekele and Ayele (2008) found that globalization had brought the value chain and competitiveness issues to the forefront, where individual efficiencies being less important. Roy (2012) stated that Indian leather faced challenges in terms of increasing environmental standards but in response to government measures the industry has improved. Similar findings were obtained by Priya and Anthuvan (2012) in the Indian leather industry.

Pakistan is no exception to the changing trends at international level and consequently leather industry in the country has flourished in response to handsome earnings from the international market (Siddiqui, 2001). In spite of huge growth opportunities, leather sector is facing many challenges in the country. Bashir (2003) pinpoints a problem with leather industry in Pakistan viz. the country exports high quality leather instead of high value-added leather products. Leather garments in Pakistan are made mostly from low quality and low grade leather. These garments face tough competition from Chinese and Indian leather products as the cost of production is relatively high in Pakistan. Massood (2009) suggested a few measures for the revival of leather industry in Pakistan including sustainable supply of raw material, establishment of modern manufacturing facilities and promotion of leather exports in the international market.

As a matter of fact, it may safely be concluded that leather is an important export industry in Pakistan. Over time it has flourished but still it is facing many challenges that include shortage and low quality of raw material, improper marketing strategies, volatile international prices etc. Most of the research work exploring performance of leather industry in Pakistan is qualitative in nature and almost none of the study is available that empirically evaluates the leather industry as a case study. Moreover, literature analyzing marketing opportunities and trends is also not available in this respect.

### **3. Research Methods**

The scope of this study is mainly confined to Punjab as almost 90 percent of total leather export is shared by the province. In addition 75 percent of total exporters are based in Punjab. As such exporters from the province were the sampling frame for sample selection. In Punjab, leather production and exports are primarily located in district Sialkot and Kasur. These districts were selected as a representative sample of the total population. A list of leather exporters from these districts was obtained from the Trade Development Authority of Pakistan (TDAP) and a representative sample of forty exporters was selected purposively from the total population of district Sialkot and Kasur for the year 2011 in consultation with TDAP officials. Exporters who mainly export leather jackets to USA and Germany were selected as these two are the leading countries that import leather jackets from Pakistan.

#### **3.1 Regression Analysis**

The relationship between dependent and independent variable is given as;

$$Y = f (X_i, D_j) \quad (1)$$

Where;

Y = Export value of leather jackets (million rupees)

$X_i$  = Vector of quantitative variables where  $i = 4$

$D_j$  = Vector of qualitative variables where  $j=2$

By taking natural log on both sides

$$\ln Y = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_1 D_1 + \beta_2 D_2 + \mu \quad (2)$$

Where;

X1= Education of exporters (number of years of schooling)

X2= Experience of exporters (number of years)

X3= Average purchase price of raw material for jackets (in PKR).

X4=Average marketing cost of leather jacket. The cost of different activities like transportation, packaging, labeling, custom clearance, freight charges and other charges (in PKR/dozens)).

D1 = A dummy variable is used as a proxy variable to check for effect of ISO certification (9000) of exports. Values of the dummy variable were taken as 1 and 0. Where 1 indicated that exporters were ISO certified and 0 indicated absence of ISO certification.

D2 = A dummy variable is used as a proxy variable to check the effect of energy crises on the export of leather goods. Values of this variable were taken as 1 and 0; where 1 indicated that leather exports were affected by energy shortage and 0 otherwise.

$\beta_0$  is the intercept,  $\beta_s$  are the slope coefficients and  $\mu$  is the random error

### ***3.2 Justification of the Variables***

It has already been mentioned in the literature review that limited studies are available regarding the performance of leather exports from Pakistan. It was difficult to find a study that empirically estimated the effect of major variables on export of leather jackets in Pakistan or in some other countries. So insight was gained after discussion with experts in the leather industry and TDAP for selecting and finalizing variables for this study. Socio economic variables mainly education and experience are considered important in the context that both enable exporters to take judicious decisions in utilization of their resources. As such this leads to success or failure of any business venture. Different exporters have varying skills in purchasing raw

material of the required quality at affordable prices. This poses an opportunity or threat to their economies of scale or the increasing production cost element. In the same way marketing cost including cost of consignment, freight, clearance, materials require specific skills and may bear serious implications for the success of an export business. The current scenario of electricity shortage is also considered to be important and economic rationale behind it is self-explanatory. Compliance to international standards/requirement is essential for a successful export business, so a variable representing ISO 9000 certification was included in the study.

#### **4. Results**

In order to depict the real situation of exports and to understand business practices of leather exporters, efforts were made to quantify the impact of different variables that have a direct or indirect influence on the export of leather products. For this purpose detailed information was collected from the exporters. However in social sciences, it seems difficult to quantify the impact of all variables, so dummy variables were also used to capture the effect of some qualitative variables i.e. ISO certification and energy crises.

##### ***4.1 Determinants of Leather Exports to the US Market***

As a first step, sample data was described by the measures of central tendency, measures of dispersion, minimum, maximum values and the measures of distribution.

To test for collinearity (or multicollinearity) which is an undesirable feature of the data, where correlations among the independent variables is high. Tolerance statistic is used to determine the extent to which the independent variables are linearly related to one another. Similarly, Variance Inflation Factor (VIF) is the reciprocal of the tolerance. As the VIF increases, so does the variance of the regression coefficient, making it an unstable estimate. Large VIF values are an indicator of multicollinearity. All the VIF values given in table 2 are less than 10 which indicate absence of

multicollinearity in the data set<sup>1</sup>.

Table 1  
Description of Data for the US Market (Rs. Per Dozen)

Variables	Minimum	Maximum	Mean	Std. Deviation	Kurtosis	Skewness
Export Value (Million Rs)	341.65	695.58	508.78	112.70	-0.39	0.28
Purchase Price	43968.00	63228.00	53514.60	5857.75	-0.27	0.17
Marketing Cost	683.59	1375.15	1002.97	157.98	0.17	0.22
Experience of Exporters (years)	3.00	29.00	12.20	6.62	0.32	0.16
Education of Exporters (years)	10.00	16.00	13.55	1.99	0.19	0.12

Calculations were made using exchange rate of 1USD=87PKR as per August 25, 2011

Table 2  
Collinearity Statistics of Variables Used In Model for USA Market

Collinearity Statistics		
Variables	Tolerance	Variance Inflation factor (VIF)
Purchase price(Rs/dozen)	0.318	3.147
Marketing cost(Rs/dozen)	0.714	1.401
Experience of exporters (years)	0.762	1.313
Education of exporters (years)	0.773	1.293
D1 (Dummy for ISO certification)	0.815	1.228
D2 (Dummy for energy crises)	0.761	1.314

The relationship between export value of leather jackets and variables

<sup>1</sup>Different studies have taken different values of VIF to decide about multicollinearity in the data set. Following Gujarati (2003), in this paper the value of VIF greater than 10 imply the problem of multicollinearity exists.



including education as well as, experience of leather exporters, average purchase price and average marketing cost was estimated by employing the double log form of the regression model.

Table 3  
Summary of Estimated Regression Results of Export model (USA)

Variables	Coefficients	Standard Error	t-value	Significance
Constant	10.341	3.783	2.734	0.010
Ln X1 ( Education)	.338	.151	2.243	0.032*
Ln X2 ( Experience)	.100	.038	2.628	0.013*
Ln X3 ( Purchase price)	-.816	.305	-2.676	0.012*
Ln X4 ( Marketing cost)	-.214	.162	-1.317	0.197 <sup>NS</sup>
D1 (Dummy for ISO certification)	.128	.050	2.552	0.016*
D2(Dummy for energy crises)	-.062	.050	-1.233	0.227 <sup>NS</sup>
R <sup>2</sup>		0.77		
Adjusted R <sup>2</sup>		0.72		
F-Value		15.41		
Standard Error		0.12		

\* = Significant at 5% level

\*\*= Significant at 10% level,

NS = Non Significant

Regression results of exports reported in Table 3 indicate that, education is a significant and important socio-economic variable that enables the exporters to manage their business efficiently. For every one percent increase in education (years of schooling) one may expect an increase of 0.34 percent in the export value of leather jackets, keeping all other factors constant. Experience of exporters also significantly affects the export business positively. More experienced exporters are better able to take rationale business decisions and for every one percent increase in experience (Years) of leather exports there might be an increase of 0.10 percent in the export value of leather jackets.

ISO certification was used as a dummy variable to check exporter's

perceptions regarding required compliance to standards for the USA market. It is found that the exporters who were ISO certified had exports 0.13 times more than the exporters who were not ISO certified. This variable for the USA market was significant and showed the importance of ISO certification. Results of the dummy variable measuring exporters' perception about the energy crisis and the status of export orders from the USA market show that leather exports and energy crises are though negatively related, the exports seem to have not been affected significantly as exporters relied on some alternative source of electricity generation.

#### ***4.2 Determinants of Leather Exports to Germany***

Descriptive statistics of variables representing the German market for leather exports is mentioned below in table 4. The results show that all the variables were having normal distribution.

Table 4  
Description of data for Germany Market (Rs. per Dozen)

Variables	Minimum	Maximum	Mean	Std. Deviation	Kurtosis	Skewness
Export Value (million Rs)	281.81	757.33	467.7554	134.42	-0.29	0.21
Purchase Price (Rs/dozen)	44400	60768	53203.30	5025.67	-0.27	0.17
Marketing Cost (Rs/dozen)	603.25	1041.18	831.31	83.88	0.20	0.25
Experience of Exporters (years)	1	23	10.65	4.89	0.32	0.16
Education of Exporters (years)	10	16	13.05	2.52	0.19	0.12

In the analysis, all VIF values of variables are less than 10 that show no

multicollinearity exists in the data set (table 5).

Table 5  
Collinearity Statistics of Variables used for the German Market

Collinearity Statistics		
Variables	Tolerance	Variance Inflation factor (VIF)
Purchase price (Rs/dozen)	0.595	1.681
Marketing cost (Rs/dozen)	0.762	1.313
Experience of exporters (years)	0.840	1.191
Education of exporters (years)	0.447	2.236
D1 (Dummy for ISO Certification)	0.841	1.189
D2 (Dummy for energy crises)	0.619	1.615

The coefficient of education was positive but insignificant. The coefficient of experience was positive and significant, it means for every one percent increase in experience (Years) there might be an increase of 0.16 percent in export of leather jackets, keeping all other factors constant. The coefficient of purchase price of raw material of leather jackets showed a

Table 6  
Summary of Estimated Regression Results of Export Model (Germany)

Variables	Coefficients	Standard Error	t-value	Significance
Constant	40.146	5.205	7.714	0.000
Ln X1 ( Education)	0.006	0.169	0.036	0.971 <sup>NS</sup>
Ln X2 ( Experience)	0.155	0.043	3.577	0.001*
Ln X3 ( Purchase price)	-0.633	0.304	-2.083	0.045*
Ln X4 ( Marketing cost)	-0.235	0.251	-0.937	0.356 <sup>NS</sup>
D1 (Dummy for ISO certification)	0.081	0.061	1.320	0.196 <sup>NS</sup>
D2 (Dummy for energy crises)	-0.267	0.056	-4.812	0.000*
R <sup>2</sup> =		0.785		
Adjusted R <sup>2</sup> =		0.738		
F-Value = 16.73		16.73		
Standard Error =		0.14		

\* = Significant at 5% level

\*\*= Significant at 10% level

NS = Non Significant

negative sign and was significant. So for every one percent increase in purchase price of leather jackets there would be a decrease in the export value of leather jackets by 0.63 percent (table 6).

The coefficient of marketing cost of leather jackets of -0.24 showed a negative sign and was insignificant. A dummy variable used for ISO certification to check exporter's perceptions about compliance to standards needed for exports to the German market is not found to be significant. The dummy variable for energy crisis shows that the exporters who suffered from energy shortfall faced 0.27 times fewer exports than the exporters who had their own generators and alternative sources for producing electricity (table 6).

## **5. Concluding Remarks**

This study estimated the impact of major determinants of export performance of leather goods from Pakistan. For the US market, these variables include experience and education of exporters, purchase price of raw material, and ISO Certification. Whereas for the German Market, experience of exporters, purchase price of raw material and energy crises are the important factors affecting the export performance of leather goods. To further improve the export performance of Pakistan's leather industry, it needs to develop sustainable supply of raw material and promote quality standards according to the requirements of importing countries. Consistent supply of electricity at fair prices should also be a priority of the government. This study tried to analyze major determinants of export performance of leather jackets from the country to two major markets viz. the US and German markets; however future research efforts should be expanded to analyze the growth and performance of other leather products to other markets.

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