©*The Pakistan Development Review*
51:2 (Summer 2012) pp. 103–115

Market Diversification and Firms' Characteristics of Export-Oriented Manufacturers in Pakistan

EJAZ GHANI, TARIQ MAHMOOD, and MUSLEH UD DIN

This paper explores the determinants of market diversification by export-oriented manufacturing firms using the logistic regression framework. The results show that firm level characteristics including age of the enterprise, managerial expertise, type of ownership, and size of the enterprise play a key role in determining the probability of market diversification by firms. These findings highlight the salience of firm level capacities in achieving export diversification in Pakistan.

JEL Classification: F14, L25
Keywords: Exports, Firms, Market Diversification, Manufacturing

1. INTRODUCTION

It is generally recognised that export market diversification is essential for a viable export-led growth strategy. It allows countries to reduce their vulnerability to fluctuations in export markets, helps businesses establish linkages with a diverse set of buyers enabling them to widen their product profiles in line with the varying demand patterns. Export market diversification is an important issue at both macro and micro levels. At the macro level, a diversified export market structure can make a country's exports less sensitive to market fluctuations in specific markets. It must, however, be pointed out that export market diversification at the macro level does not imply that individual firms can also do that. As a matter of fact, diversification at the macro level is perfectly compatible with export market concentration at the firm level. Research has generally focused on this issue from the macro perspective but little is understood in terms of diversification at the firm level. This paper is an attempt to explore the determinants of export market diversification at the firm level focusing on the firms' characteristics that can potentially influence their ability to diversify their trading relations in international markets.

As pointed out by Burki, *et al.* (2010), Pakistan's performance in market diversification is fairly good at the macro level: for the year 2008, the Hirschman concentration index for Pakistan is estimated at 0.2511.[1] However, the decision to diversify has to be made by individual firms and in this sense it is important to

Ejaz Ghani <ejazg@yahoo.com> is Dean, Faculty of Economics and Business Studies, Pakistan Institute of Development Economics, Islamabad. Tariq Mahmood <tariqpide@yahoo.com> is Senior Research Economist at the Pakistan Institute of Development Economics, Islamabad. Musleh ud Din <muslehuddin@pide.org.pk> is Acting Vice-Chancellor at the Pakistan Institute of Development Economics, Islamabad.

[1]"The Hirschman index measures the geographical concentration of exports i.e. it shows the degree to which a country's exports are dispersed across different destinations. The Index can take a value between 0 and 1; higher values indicate that exports are concentrated in fewer markets. A value of 1 indicates that all exports go to a single destination. Hence high concentration levels can be interpreted as an indication of vulnerability to economic changes in a small number of export markets." Burki, *et al.* 2010.

empirically examine how different firm-level characteristics affect the pattern of market diversification.[2] The issue of export market diversification at the firm level is important for at least two other reasons. First, achieving export market diversification has been an important goal of export promotion policies in Pakistan. However such policies have not been the result of rigorous research on the determinants of export market diversification at the firm level. Therefore these policies have been ad hoc in nature without a clear understanding of the dynamics of the firms for export market diversification. Second, outsourcing and multinational production have considerably changed the dynamics of production processes. Rapid advances in the means of communication have enabled even relatively smaller firms to target niche markets for higher profits. These circumstances have produced enormous opportunities for competitive firms to earn high profits through market diversification. Against this backdrop, it is important to develop an understanding of what determines the ability of the firms to diversify in international markets.

Firms diversify to maximise their profits. However, market diversification almost always involves many types of extra costs and requires extra skills. First of all there are production costs involved which a firm must incur to modify its product in accordance with the demand of the new markets. This might involve investment in new technologies and human skills. Secondly, market diversification requires managerial and marketing skills, and knowledge about potential markets. On the other hand, besides creating new opportunities of high profits, market diversification makes firms less vulnerable to market-specific demand fluctuations. At the macro-level it induces spill-over effects in the form of new complementarities and growth in related industries through forward- and backward- linkages.

The rest of the paper is organised as follows: Section 2 provides a brief review of empirical literature on the subject whereas data and the econometric model are discussed in Section 3. Section 4 discusses the empirical findings while Section 5 contains the summary and conclusions.

2. REVIEW OF LITERATURE

Trade diversification is quite a well researched area in empirical literature. During 1950s writers like Presbish (1950), and Singer (1950) theoretically built development models which implied correlation between export diversification and growth. Later some empirical studies tried to establish a link between diversification and growth of per capita income, see for example, Al-Marhubi (2000); de Ferranti, *et al.* (2002); Hesse (2006); Lederman and Maloney (2007).

Export diversification has many dimensions and levels of analysis; for instance, there can be diversification in products as well as in markets. In the former it can take both horizontal or vertical forms. Horizontal diversification takes place within the same sector by adding new products. On the other hand vertical diversification implies technological improvement in exports from primary to secondary or tertiary sector. Market diversification means a variety of export destinations, region as well as country-wise. Thus the levels of analysis for export diversification can be both at macro or micro level.

[2]In a preliminary study [PIDE (2007)], export market diversification is correlated with firm size where larger firms are more diversified reflecting gains from economies of scope and exporting experience.

Review of Some Empirical Studies

At the micro level, empirical analysis of *product diversification* is at least three decades old [see, for example, Caves, *et al.* (1980); Goto (1981) and Goudie and Meeks (1982)]. At the micro level, empirical analysis of *market diversification* is a relatively new area of research. Earlier works on market diversification at firm level include Aw and Batra (1998) and Qian and Li (1998). These works, and the more recent studies are briefly reviewed below.

Aw and Batra (1998) analyse the relationship between various forms of diversification and firm size in Taiwan's manufacturing industries. The study covers five manufacturing industries viz., Textiles, Clothing, Plastics, Fabricated metals, and Electric/Electronics. The study uses data taken from Taiwanese Census of Manufactures 1986. Firm-level indices of diversification are developed which include product and geographical diversification. Further, semi-parametric regression techniques are used to analyse the relationship between various forms of diversification and firm size. The technique allows controlling for firm specific characteristics like age, technology investments, foreign ownership and market structure. Separate equations are used to analyse the effect of independent variables on product and market diversification. The results indicate positive relation between firm size and product diversification. However, geographical market diversification is relatively more common among small and medium firms. It is also found that older and more established firms diversify more. The sign of technology variable is found to be positive with respect to product diversification in all five industries implying a close link between innovative capability and product diversification. Foreign ownership is not found to be statistically significant in any industry. The authors attribute this to the small percentage of firms that have any foreign capital in Taiwanese manufacturing.

Qian and Li (1998) analyse two dimensions in which a firm's foreign operations can be defined viz. geographic scale and scope. Geographic scale refers to foreign involvement, whereas geographic scope indicates a firm's expansion into different world regions or markets. The paper especially focuses on US firms' strategic combinations by relating to the risk of profits. Entropy has been used to compose the index for global market diversification which is based on the ratio of a firm's holdings in a region to its global holdings. The data consist of a sample of 125 largest U.S. firms on the *Fortune* 500, covering the period 1983 to1992. The results indicate that the combination of high geographic scale and medium geographic scope of foreign operations outperformed other strategic combinations.

Ang (2007) analyses the effect of diversification on the performance of 152 companies listed in New Zealand and Australia. The study uses cross section data for the year 2004, and only companies registered since 2001 are subjected to analysis.

The data are collected from the Datex Company Information database, and the Aspect Equity Review database for New Zealand and Australia respectively. The Datex Company Annual Report database and the Australian Stock Exchange website are also used to supplement these data sources. The selected variables include, company profitability, sales, composition of sales by countries/regions, total liabilities, shareholder

equity, the year of incorporation, market performance, and industry of participation. The level of market diversification is measured by the proportion of sales carried out beyond the domestic market. Regional as well as non-regional market diversification is included in the analysis. Linear Regression analysis is conducted to test the effect of the company's prior performance on international diversification. The results indicate that in the case of non-regional diversification, the performance has a non-linear effect on market diversification. This indicates a threshold level beyond which the positive effect tapers off. However, in the case of regional market diversification, performance shows a negative effect. The author attributes this to limited economies of scale and scope in the regional market.

Yoshino (2008) analyses export intensity and market diversification of manufacturing sectors of seven Sub-Saharan African countries viz., Benin, Ethiopia, Kenya, Madagascar, Senegal, Tanzania, and Uganda. The study uses the firm-level World Bank Investment Climate Survey (ICS) data to explain how domestic supply constraints and other firm characteristics explain export intensity and market diversification. Exports are analysed at the regional and global levels. The study uses Tobit model for export intensity and a multinomial Probit model for market diversification. Explanatory variables include the firms' age, size, ownership, capital intensity, labour and managerial skills and infrastructural variables, such as custom delays and power outages. The results show that size, foreign ownership, and the technology are important factors in explaining firm-level export performance in terms of intensity and market diversification. Domestic constraints, like inefficiency in customs and inferior quality of infrastructure, have a negative effect.

Gourlay and Seaton (2010) analyse the firms' market diversification by using a bivariate Probit model to examine the market diversification decisions for a panel of U.K. firms. The study uses data for 2307 U.K. publicly quoted firms for the period 1988 to 2001. The Data Stream International is used as the data source. Firm size, wages, R&D, directors' remuneration and the level and variability of exchange rates are used as the explanatory variables to determine the probability of a firm diversifying into foreign markets. All these variables are found to have a significant effect on the probability of the firms' market diversification.

Eaton, Kortum, and Kramarz (2004) analyse the entry behaviour of producers in different industries, and in different export markets. The study uses firm-level data from 16 manufacturing industries in France for 1986. A regression model is used with a number of French exporters in a specific market and for a specific industry as the dependent variable. The independent variables are (i) France's market share (ii) number of French firms in that market, and (iii) industry bias of French exporters in a specific market (defined as the ratio of the number of French exporters of a specific industry in the market and the number of French exporters of all industries in that market). The results indicate high level of heterogeneity across firms in the extent of their export participation, whereas most of the selling is noted to be taking place in the domestic markets. Moreover, an inverse relation is found to exist between firms selling in multiple markets, and the number of export destinations. About 60 percent of variation in market size is explained by firm entry.

3. DATA AND METHODOLOGY

The analysis of this paper is based upon a survey conducted by the Pakistan Institute of Development Economics (PIDE) in collaboration with the United Nations Industrial Development Organisation (UNIDO) for the study titled "Trade Related Challenges Facing Exporters in Pakistan". The survey covers 157 enterprises in the provinces of Sindh and Punjab engaged in manufacturing of exportable goods. This dataset provides information on a variety of aspects of export-oriented enterprises including, for example, export markets, ownership structure, size of business and location.

Before going into the methodology of the analysis, a brief description of the surveyed firms seems appropriate.

As Table 1 shows, the surveyed firms come from four main sectors, namely, textile/apparels, leather, agro-food processing, and fisheries. The textile/apparel sector contains about 50 percent of the surveyed firms, and is subdivided into bed-sheets and towels, garments, knitwear, yarn, textile integrated and fabrics. The leather sector contains about 22 percent of the sample, and consists of leather products/garments, tanning, footwear, and leather integrated. The agro-food processing sector covers about 17 percent of the sample, and has three sub-sectors, viz., Rice (grading and polishing), Horticulture products (fruits and vegetables), and Meat. The fisheries sector covers the remaining 12 percent of the firms, and has no further sub-sectoral division.

Table 1

Distribution of Sub-Sectors in the Sample

Sectors	Number of Reporting Firms	Percentage of Reporting Firms
Textile/Apparel	**77**	**49.04**
Bed Sheets and Towels	16	10.19
Garments	14	8.92
Knit Wear	14	8.92
Yarn	12	7.64
Textile Integrated	11	7.01
Fabric	10	6.37
Leather	**35**	**22.29**
Leather Products/Garments	19	12.10
Tanning	8	5.10
Footwear	4	2.55
Leather Integrated	4	2.55
Agro-food Processing	**26**	**16.56**
Rice (Grading and Polishing)	17	10.83
Horticulture Products (Fruits and Vegetables)	5	3.18
Meat	4	2.55
Fisheries	**19**	**12.10**
Fish Processing and Exporting	19	12.10

Table 2 gives the size and distribution of firms with respect to number of employed labour. A relatively small percentage (about 30 percent) of firms lie in the categories of less than or equal to 49 or greater than or equal to 1000 labourers.

Table 2

Percentage Distribution of Firms w.r.t. Number of Labourers

	Textiles	Leather	Agro-food	Fishery	Total
Less than or Equal to 49	3.28	4.1	5.74	1.64	14.75
From 50 to 99	3.28	9.84	5.74	4.1	22.95
From 100 to 249	9.84	4.92	4.1	4.92	23.77
From 250 to 999	16.39	3.28	2.46	0.82	22.95
Greater than or Equal to 1000	13.93	1.64	0	0	15.57

To analyse the question of market diversification by exporting firms, we assume that the firms' capacity to diversify in international markets depends on firm characteristics including experience of the enterprise, ownership structure, size of its operations, and location. All of these factors combine to determine the ability of the firms to diversify in international markets. Market diversification is treated as a binary variable; a firm either diversifies or it does not. Due to the assumed binary nature of the dependent variable a Logit model is used.

Let P_i be the probability that market diversification by the firm i takes place. Assuming that P_i follows a logistic distribution,

$$P_i = e^z / (1 + e^z)$$

The odds ratio is given by

$$P_i/(1-P_i)$$

Where $1-P_i$ is the probability that market diversification by the firm i does not take place.

The natural log of this odds ratio gives the following Logit Model:

$$Z_i = ln[P_i / (1- P_i)]$$
$$= \beta X$$

Where vector X represents the firms' characteristics and β is a vector of coefficients. Since the probabilities of this Logit Model are not directly observable, we proxy these by a binary variable y_i which takes a value of 1 if the ith firm is diversifying its exports, and 0 otherwise. The unknown parameters can be estimated by the Maximum Likelihood Method. Using y_i as a dependent variable we estimate the following equation:

$$y_i = \beta_0 + \beta_1 Age_i + \beta_2 Ownership_i + \beta_3 Size + \beta_4 SPL + \beta_5 Dtext_i + \beta_6 Dagro_i + \beta_7 Dleather_i + \beta_8 Kar_i + \beta_9 Lhr + \beta_{10} Skt + \beta_{11} DManage_i + u_i$$

Where

Age: Age of firm in years.

Ownership: Dummy variable taking a value of 1 if the firm is domestically-owned and 0 otherwise.

Size:	Size of firm measured by number of labour employed.
SPL:	Sales per labour
Dtext, Dagro, Dleather:	Dummy variables to capture the sectoral effects of Textile, Agriculture, and Leather respectively
Kar, Lhr, Skt:	Dummy variables to capture the location effects of Karachi, Lahore, and Sialkot respectively
DManage:	Dummy variable to assess the managerial capabilities of the firm

These variables are briefly explained below:

The binary variable $y_{i,}$ is used to represent market diversification. If a firm is selling in only one market[3] a value of zero is assigned to y_i, otherwise y_i takes a value of one. The variable 'Age' represents the number of years the firm has been in business. Older firms may have positive impact on market diversification due to their experience and being in a better position to take advantage of opportunities in diverse markets. It is also possible though that newer firms having a modern outlook employing better management, production and marketing techniques may similarly exploit export market opportunities. The evidence in the empirical literature is mixed. In fact the age to diversification relationship can only be determined empirically.

The structure of ownership of the exporting firms is also believed to be a factor in market diversification. For instance, a foreign-owned firm may be in a much better position to diversify in international markets because of its international networking and integration in international supply chains, better product and process technology, and better understanding of global demand patterns. Yet that does not bar domestically owned enterprises from acquiring better management and technology to compete effectively with their foreign-owned counterparts in international markets. Only empirical results can tell whether foreign firms have any advantage in market diversification or not.

Firm size is measured by the number of employees. This is in line with traditional measures of firm size [see, for example, Yoshino (2008)]. Firm size is expected to positively influence the probability of diversification in that larger firms may be better able to cater to different markets in terms of their production capacity and achieving scale economies in the process.

The variable SPL measures sales per labour. Since we do not have direct data on output or value of production, and all firms in the sample are exporting firms, SPL can also be a good proxy for labour productivity. Firms with more productive labour, due to better technology or human skills, are expected to be more competitive in diverse markets. So, this variable is expected to have a positive coefficient.

In addition to the above variables, we use dummy variables for export sectors as well as location: Dtext, Dagro, and Dleather are sectoral dummies representing Textile, Agro-processing industries and Leather respectively. Similarly Kar, Lhr and Skt are dummy variables representing Karachi, Lahore, and Sialkot respectively to capture location specific effects. These three cities represent major industrial hubs having some location specific advantages. For example, Karachi is a major industrial centre with ports,

[3]Seven markets are taken into consideration viz., North Africa and Middle East, Sub-Saharan Africa, European Union, Europe other than Non-European Union, North America, and Latin America. Markets not falling in any of these categories are labeled as "Others".

industrial zones, availability of skilled labour force, and industrial amenities. Similarly, Lahore is a major industrial and commercial centre having a central location and large presence of diverse industrial enterprises. The city of Sialkot is also a cluster of export-oriented industries including sports goods, surgical instruments, leather and related products. The location dummies for these cities would help identify whether the firms are able to take advantage of their location in terms of cluster effects, agglomeration economies and networking and learning among enterprises to leverage their market diversification strategies.

The firms with better managerial expertise are expected to have better marketing plans to sell in different markets. A competent and experienced management, being forward-looking, is well aware of new markets and is better able to develop products in line with market trends. Unfortunately, data on managerial competence are not available. We have thus tried to proxy this variable by a binary variable that captures the firms' responses about their future investment plans. A competent management is more likely to be aware of the available investment opportunities and will have prepared future investment plans in line with their market diversification strategies. We use a dummy variable DManage which assumes a value of one if a firm has prepared such a plan, and zero otherwise. This variable is expected to have a positive coefficient.

4. ESTIMATION RESULTS

The results of Logit regression are reported in Table 3 below. The likelihood ratio test is used to test the null hypothesis that all the slope coefficients are simultaneously equal to zero. The results indicate that the null hypothesis is rejected. The McFadden R-squared figure turns out to be about 0.3; however, it is generally accepted that in binary regression models goodness of fit matters less than the expected signs and significance of the regression coefficients.

Table 3

Results of Logit Regression Equation

LR chi^2_{11} =40.03
Prob > chi^2 =0.0000
Log likelihood = –47.681489
Pseudo R^2=0.2957

y_i	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
cons	–2.8350	1.5204	–1.86	0.062	–5.8151	0.1450
Age	0.0741	0.0263	2.81	0.005	0.0225	0.1257
Ownership	0.8194	0.8235	1	0.32	–0.7946	2.4334
Size	0.0022	0.0012	1.74	0.082	–0.0003	0.0046
SPL	0.0207	0.0088	2.35	0.019	0.0034	0.0379
Dtext	–0.7883	0.9421	–0.84	0.403	–2.6349	1.0583
Dagro	–0.9662	0.9674	–1	0.318	–2.8622	0.9298
Dleather	–1.4352	1.1661	–1.23	0.218	–3.7206	0.8503
Kar	–0.3326	0.9511	–0.35	0.727	–2.1967	1.5315
Lhr	–1.4034	0.9685	–1.45	0.147	–3.3016	0.4948
Skt	1.147481	1.0002	1.15	0.251	–0.8129	3.1079
DManage	1.444089	0.7698	1.88	0.061	–0.0648	2.9530

The variables "Age" and "Size" are significant with positive signs implying that older, more experienced and bigger firms are more likely to diversify in foreign markets. It is to be expected that more experienced enterprises would better be able to profit from diverse market opportunities while larger firms having the advantage of size are able to capture market share in different export markets. The statistical insignificance of "Ownership" is, however, surprising. It appears that firms under foreign ownership are concentrating on single markets for their exports. This might be due to their commitments with the importers of their country of origin. Another possibility could be that foreign firms may be part of a vertically integrated production structure exporting to the market where their production facilities might be located.

Labour productivity proxied by sales per labour comes out to be an important driver of market diversification. Firms in which labour is more productive due to better human skills, and better production technology and organisational strength are more likely to be competitive in international markets helping them to achieve greater market diversification.

The sectoral dummies are found to be insignificant, which means that firms in a particular sector, say textiles, are in no better position to diversify in international markets than firms in another sector, indicating absence of any inherent advantage relating to market diversification in a particular sector. The location dummies also turn out to be insignificant showing that firms located in a specific place have no better prospects of achieving market diversification than firms in another location. Big industrial cities are usually expected to have business association and organisations that help firms to acquire new skills, design new products, explore new markets, and suggest ways to develop an efficient supply chain. It appears that our big cities have not yet fully developed such institutions, and this institutional gap makes firms located at a specific location not better than those located elsewhere. In fact negative sign might be an indication that negative externalities (e.g. congestion, input constraints) are dominating the potential positive externalities. This also holds for sectoral dummies which indicate possible sector-specific institutional gaps.

The robustness of significant variables, viz., "Age", "Size", and "SPL" (Sales per labour) has been checked by running additional regressions. Results (Appendix) show that these variables remain statistically significant without location dummies and/or sectoral dummies. However, the size of the Pseudo R^2 is reduced in these alternative specifications.

Table 4 reports the marginal effects derived from the Logit regression. The predicted value of dependent variable *y* is reported at the top of the table. This value is estimated at given values of independent variables *X*, which are displayed in the last column of the table. The marginal effects measure the magnitude of change in the dependent variable as a result of a change in the explanatory variables. For example, an addition of one year in the age of the enterprise increased the probability of market diversification by one percent holding other variables constant at their mean values. Similarly, the firms with future investment plans are 26 percent more likely to achieve market diversification as compared with firms having no such plans. This highlights the significance and the need for the firms to develop long-term investment plans to help support their market diversification strategies.

Table 4

Marginal Effects of Logit Regression

y = Pr(y_i) (predict)
= 0.8372

Variable	dy/dx	Std.Err	z	P>z	[95% C.I.]		X
Age	0.0101	0.0044	2.31	0.021	0.0015	0.0186	24.5192
Ownership*	0.1337	0.1582	0.84	0.398	–0.1764	0.4438	0.8462
Size	0.0003	0.0001	2.95	0.003	0.0001	0.0005	569.019
SPL	0.0028	0.0014	2.07	0.038	0.0002	0.0055	32.5011
Dtext*	–0.1106	0.1313	–0.84	0.399	–0.3680	0.1467	0.4519
Dagro*	–0.1605	0.1905	–0.84	0.399	–0.5338	0.2127	0.1731
Dleather*	–0.2436	0.2348	–1.04	0.299	–0.7039	0.2166	0.25
Kar*	–0.0452	0.1295	–0.35	0.727	–0.2991	0.2087	0.5192
Lhr*	–0.2473	0.2036	–1.21	0.225	–0.6464	0.1518	0.1923
Skt*	0.1197	0.0864	1.38	0.166	–0.0497	0.2891	0.1538
DManage*	0.2611	0.1710	1.53	0.127	–0.074	0.5963	0.8365

(*) dy/dx is for discrete change of dummy variable from 0 to 1.

5. SUMMARY AND CONCLUSIONS

The issue of export market diversification has been at the forefront of export promotion strategies. In this paper, we have argued that for a deeper understanding of factors that drive export market diversification, it is important to study the issue at the firm level. This is because while a country may exhibit export diversification at the macro level, its exporting enterprises may still be concentrated in one market. Based on a dataset of exporting firms, the paper has developed a binomial Logit model to analyse the probability of firms to diversify in international markets. It is assumed to be influenced by firm level characteristics including the experience of firms, their ownership structure, labour productivity, location, and managerial expertise.

The results show that older and more experienced firms have a better likelihood of diversification in international markets mainly because of their accumulated experience that enables them to produce according to different market requirements and to establish networking with international buyers. Both size and labour productivity positively influence the firms' probability to diversify in international markets underpinned by scale economies and cost competitiveness. Locational and sectoral dummies do not affect market diversification in a significant way. This may be due to institutional gaps and weaknesses which hamper dissemination of information and mutual coordination of firms.

The results underline the need for taking account of the role of firm level characteristics in export market diversification strategies. For example, our analysis has shown that labour productivity is a significant driver of market diversification at the firm level. In this respect, the development of human resources with the requisite skills can help firms to improve productivity and competitiveness buttressing their capacity to diversify their exports in international markets. Similarly, large scale enterprises have been shown to have a better likelihood of export market diversification. In this context, export promotion policies that are aimed at achieving market diversification need to focus on establishing a business climate that is conducive for private sector investment and business expansion.

APPENDIX

(a) Results of Logit Regression Equation without Location Dummies

LR $chi^2(8)$ = 31.67
Prob > chi^2 = 0.0001
Log likelihood = –51.860809
Pseudo R^2 = 0.2339

y_i	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
cons	–2.3937	1.1305	–2.12	0.034	–4.6095	–0.1779
Age	0.0655	0.0217	3.01	0.003	0.0229	0.1081
Ownership	0.5564	0.7682	0.72	0.469	–0.9492	2.0620
Size	0.0015	0.0008	1.87	0.061	–0.0001	0.0030
SPL	0.0167	0.0084	1.98	0.048	0.0002	0.0332
Dtext	–0.6250	0.7842	–0.80	0.425	–2.1621	0.9120
Dagro	–0.7735	0.8855	–0.87	0.382	–2.5091	0.9621
Dleather	–0.7508	0.8545	–0.88	0.380	–2.4256	0.9240
DManage	1.0302	0.6756	1.52	0.127	–0.2939	2.3543

(b) Results of Logit Regression Equation without Sectoral Dummies

LR $chi^2(8)$ =38.35
Prob > chi^2=0.0000
Log likelihood = –48.523823
Pseudo R^2=0.2832

y_i	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
cons	–3.3923	1.4548	–2.33	0.020	–6.2438	–0.5409
Age	0.0569	0.0207	2.75	0.006	0.0163	0.0975
Ownership	0.6614	0.8028	0.82	0.410	–0.9120	2.2348
Size	0.0023	0.0012	1.96	0.049	0.0000	0.0046
SPL	0.0204	0.0086	2.38	0.017	0.0036	0.0373
Kar	0.2089	0.8229	0.25	0.800	–1.4040	1.8218
Lhr	–1.2287	0.9237	–1.33	0.183	–3.0390	0.5816
Skt	1.0888	0.9669	1.13	0.260	–0.8062	2.9838
DManage	1.2348	0.7182	1.72	0.086	–0.1728	2.6424

(c) Results of Logit Regression Equation without Sectoral and Location Dummies

LR $chi^2(5)$ =30.68
Prob > chi^2=0.0000
Log likelihood = –52.358948
Pseudo R^2=0.2266

y_i	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
cons	–2.6432	1.1054	–2.39	0.017	–4.8099	–0.4766
Age	0.0589	0.0198	2.99	0.003	0.0202	0.0976
Ownership	0.3871	0.7476	0.52	0.605	–1.0782	1.8523
Size	0.0014	0.0007	2.03	0.43	0.0000	0.0028
SPL	0.0161	0.0081	1.98	0.047	0.0002	210.03
DManage	0.9709	0.6624	1.47	0.143	–0.3274	2.2692

(d) Correlation Matrix of Independent Variables

	Age	Ownership	Size	SPL	Dtext	Dagro	Dleather	Kar	Lhr	Skt	DManage
Age	1.00										
Ownership	–0.25	1.00									
Size	0.22	–0.09	1.00								
SPL	0.12	0.03	–0.10	1.00							
Dtext	0.02	–0.15	0.33	–0.12	1.00						
Dagro	–0.02	0.12	–0.18	0.32	–0.42	1.00					
Dleather	0.16	0.12	–0.12	–0.12	–0.52	–0.26	1.00				
Kar	0.14	–0.14	0.06	0.09	–0.05	0.19	–0.38	1.00			
Lhr	–0.16	0.07	0.03	0.00	0.19	–0.09	0.00	–0.51	1.00		
Skt	–0.03	0.03	–0.11	–0.13	–0.12	–0.12	0.37	–0.44	–0.21	1.00	
DManage	–0.12	–0.04	0.11	–0.15	0.19	–0.07	–0.11	–0.01	0.08	–0.17	1.00

REFERENCES

Al-Marhubi, F. (2000) Export Diversification and Growth: An Empirical Investigation. *Applied Economics Letters* 7, 559–62.

Ang, Siah Hwee (2007) International Diversification: A "Quick Fix" for Pressures in Company Performance? *Business Review* 9:1, 17–23.

Aw, Bee-Yan and Geeta Batra (1998) Firm Size and the Pattern of Diversification. *International Journal of Industrial Organisation* 16, 313–331.

Burki, Abid A**.** (2010) Industrial Policy, Its Spatial Aspects and Cluster Development in Pakistan. Volume 1. Analysis Report of the Industrial Policy.

Caves, R. E., *et al*. (1980) *Competition in the Open Economy: A Model Applied to Canada*. Cambridge: Harvard University Press.

de Ferranti, David, Guillermo Perry, Daniel Lederman, and William Maloney (2002) *From Natural Resources to the Knowledge Economy: Trade and Job Quality*. Washington, DC: World Bank.

Eaton, Jonathan, Samuel Kortum, and Francis Kramarz (2004) Dissecting Trade: Firms, Industries, and Export Destinations. *The American Economic Review* 94:2, 150–154.

Goto, A. (1981) Statistical Evidence on the Diversification of Japanese Large Firms. *Journal of Industrial Economics* 29:3, 271–278.

Goudie, A. W. and G. Meeks (1982) Diversification by Merger. *Economica* 29, 271–278.

Gourlay, Adrian and Jonathan Seaton (2010) Modelling Product and Foreign Market Diversification Decisions for UK Firms. *Applied Economics Letters* 17:2, 117–120.

Gujrati, Damodar N. (2003) *Basic Econometrics*. 4th Edition. McGraw-Hill Companies.

Hart, P. E. (1971) Entropy and other Measures of Concentration. *Journal of Royal Stat. Society, Series A* 134, 73–84.

Hesse, Heiko (2006) Export Diversification and Economic Growth. Paper presented at the World Bank workshop on Export Growth and Diversification: Pro-active Policies in the Export Cycle. The World Bank, Washington, DC.

Lederman, D., and W. F. Maloney (2007) Trade Structure and Growth. In D. Lederman and W. F. Maloney (eds.) *Natural Resources: Neither Curse nor Destiny*. Stanford University Press.

PIDE (2007) Trade Related Challenges Facing Exporters in Pakistan. Joint study of Pakistan Institute of Development Economics and United Nations Industrial Development Organisation.

Presbish, R. (1950) *The Economic Development of Latin America and its Principal Problems*. New York: United Nations.

Qian, Gongming and Ji Li (1998) Multinationality, Global Market Diversification, and Risk Performance for the Largest U.S. Firms. *Journal of International Management* 4:2, 149–170.

Singer, H. W. (1950) The Distribution of Trade between Investing and Borrowing Countries. *American Economic Review* 40, 531–548.

Yoshino, Yutaka (2008) Domestic Constraints, Firm Characteristics, and Geographical Diversification of Firm-Level Manufacturing Exports in Africa. (The World Bank, Policy Research Working Paper 4575).