Assessment of the Impact of Internationally Recognized Quality Standards on the Business Performance of Firms in Sri Lanka

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Abstract

Internationally recognized quality standards are obtained by many firms in Sri Lanka with the intention of enhancing their corporate reputation. A question prevails whether this decision ultimately addresses the establishment's main financial objective of shareholder wealth maximization. The objective of this study was to examine whether there is a significant impact on the business performance of firms through certification and also to identify the factors that influence a firm to obtain international quality standards. Secondary data obtained from 606 firms were analyzed using a Treatment Effects Model to minimize the endogeneity bias. The results reveal that obtaining International quality standards has a significant positive profit effect on Sri Lankan firms. It also highlights that firms in the food industry are more likely to obtain certification than the non food sector. Experience of the top management and the size of the establishment have a significant positive influence towards certification.

Key words: Endogeneity bias, Quality standards, Treatment effects model

Introduction

A highly competitive environment could be observed in the present business context as a result of globalization, technology advancement and dynamics of the market. Therefore, customer satisfaction through quality products and services has become vital for every firm to survive in their positions. Adaption of internationally recognized quality standards is considered as the most accepted method to enhance firms' corporate reputation as a persistent quality product or service provider (Wu and Chen, 2011). A quality system could be defined as a set of fixed procedures and rules aiming to ensure that a product, process or service follows a predetermined and widely accepted set of standards (Tsekouras *et al.*, 2002). Adherence to such procedures could improve productivity as well as employee motivation in an establishment (Corbett *et al.*, 2005).

The most popular ISO standards adapted by firms in order to certify quality management systems are ISO 9000, 14000, 22000, 26000, 50001, *etc.* Hazard Analysis Critical Control Point (HACCP) is also an internationally recognized standard for food safety.

Even though each and every firm tries to obtain certification in order to be competitive and use it as a marketing tool, a question arises whether this decision ultimately addresses the main financial objective of a firm. It is important to examine whether there is a significant impact on the performance through certification.

The objective of this research was to identify whether there is a significant impact of international quality standards on the business performance of firms in Sri Lanka and also, to identify the factors that influence an entity's decision to obtain quality standards.

Materials and Methods

The dataset is extracted from the Enterprise Survey conducted by the World Bank in 2011 comprising data obtained from 606 firms (Enterprise Surveys, 2011). Treatment Effects Model is used to minimize the endogeneity bias of an outcome which could occur in single equation estimation. The principle is to estimate two regression equations simultaneously. The first

estimation is a probit regression predicting the probability of treatment. The second equation is a Linear Regression for the outcome of interest as a function of the treatment variable (Brown and Mergoupis, 2010). Existence of standard in a firm is selected as the treatment condition. Treatment function could be expressed as,

$$D^* = \alpha_0 + \alpha_1(Z_1)_i + ... + \alpha_n(Z_n)_i + \mu_i \qquad (1)$$

Where n=6, Z=observable determinants of adopting standards, α=coefficients of determinants, μ= error, i=i^{th} respondent and D*=latent index of the net value of standard adoption.

The latent index D* is not observable. Instead, observable binary variable 'D' is used to indicate the adoption of quality standard(Kenkel and Terza, 2001). If the firm has adopted any internationally recognized quality standard dummy is assigned as D=1 and if not D=0. Therefore,

$D = 1$ if $D^* > 0$

$D = 0$ if $D^* \leq 0$

The final outcome or the response of the firm could be expressed as,

$$Y = \beta_0 + \beta_1(X_1)_i + ... + \beta_j(X_j)_i + \gamma(D)_i + \varepsilon_i \qquad (2)$$

where j=6, Y=profit, X=determinants of the outcome, β terms are coefficients of determinants, D=binary variable indicating the adoption of quality standard, γ = coefficient of the binary variable, i= i^{th} respondent and ε=random error.

STATA (version 11.0)econometric software is used for the analysis.

Results and discussion

Descriptive Statistics of the Sample

Out of the 606 firms in the sample 100 firms have obtained at least one internationally recognized quality standard and it is in the order of 17% of the total

respondents. Twenty percent of the total sample belongs to the food industry and 22% in the food industry has obtained quality certification. 20% of the sample is publicly listed establishments where as 58% are sole proprietorships. Out of the listed entities 42% has obtained quality certification which demonstrates a significant participation. Thirteen percent of the total sample has invested in research and development and majority (47%) of them has obtained certification.

Results of the Treatment Function

The outcome of the treatment function as shown in Table 1 demonstrates the significance of the variables that determine the decision of whether to adopt quality standards or not. Results reveal that firms in the food industry have a very high probability to obtain quality standards than the other industry sectors. Increase of public awareness on food safety, government regulations and high competition would have influenced the food sector to adopt standards.

One important finding is the influence of top manager's experience on certification. Results indicate that firms with experienced top management have a higher probability to promote quality standards than firms with less experienced managers. Size of the firm is also a highly significant factor that has influenced obtaining standards. This reveals that larger firms have a higher propensity to obtain quality standards with the intention of maintaining their corporate reputation globally. Firms that have invested on research and development activities and new technology from foreign companies demonstrate a higher positive tendency to obtain certification than the others.

Results of the Final Outcome Regression

The effect on firm performance as a result of certification is analyzed through the regression

Table 1. Estimated coefficients of the treatment function and the final outcome regression

Variable	Coefficient	P value
Treatment Function		
Z_1 –Industry- food or non food	0.71	0.008**
Z_2 – Years of experience of top management	1.39	0.020*
Z_3 – Size of the firm - employee number	25.58	0.020*
Z_4 – Investment on Research & Development	1.21	0.001**
Z_5 – Main market	0.16	0.632
Z_6- Investment on new technology	1.24	0.000**
Z_7- Investment on new logistical or business support process	1.05	0.024*
Z_8- Investment on new marketing methods	-0.27	0.517
α_0–constant	-4.13	0.000**
Final Outcome Regression		
D –Quality Standard	6.39	0.000**
X_1– Introduction of new product & services	2.27	0.006**
X_2– Investment on Research & Development	4.27	0.001**
X_3- Years from the establishment	-7.68	0.305
X_4–Legal status		
Listed	4.33	0.017*
Partnership	4.20	0.027*
Sole	2.46	0.154
X_5– Availability of licensing & permits	5.92	0.036*
X_6– formal training programs for employees	5.47	0.542
X_7– Employee turnover within the year	-2.03	0.044*
X_8- Time period from the formal registration of the firm	7.09	0.162
β_0 –constant	-4.07	0.025*

Note: **$P<0.01$, *$P<0.05$

equation (2). The coefficient of the dummy variable 'D' which is used to indicate the presence of a quality standard is positive and highly significant. This concludes that profit of the firms who have adopted internationally recognized quality standards, is higher than the profit of firms who have not adapted any standard by 6.39 million Rupees, *Ceteris Paribus.* Therefore, it is clear that the presence of quality standards has a profit effect and thus a significant impact on business performance, which is the central hypothesis tested in this research.

Firms that have introduced new products to the market and invested in research and development demonstrate a 2.3 and 4.3 million Rupees increase in profit accordingly with compared to firms that have not introduced new products, and not invested in research and development, *Ceteris Paribus.* This clearly indicates that investment on research and development and introducing new trends to the market attract the customers and ultimately affect the business performance of a firm positively.

The effect of legal status to the performance of a firm is as follows. In comparison to limited partnerships, publicly listed companies demonstrate 4.3 million Rupees higher profit while partnership firms demonstrate 4.2 million Rupees, *Ceteris Paribus.* Publicly listed companies are highlighted in the results and this could have been resulted due to under taking many positive NPV generating projects since they have a broad access to capital markets.

Employee turnover is significant in terms of assessing business performance. The results indicate a negative relationship between the profit and employee turnover. This demonstrates that de-motivation of employees and lack of employee loyalty to the establishment directly affects the business performance negatively. Obtaining

licensing and permits also indicate a significant positive effect on firm performance.

The overarching finding is that there is a significant positive impact on performance in firms who has certification than the firms who did not.

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