

Does the Resource Capacity of Exporters Differ Significantly from the Non-Exporters? Evidence from SMEs in an Emerging Economy

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Abstract

Compared to the Small and Medium Enterprises (SMEs) that remain continuously focused on a domestic market, it is argued that those that export learn from their exporting. Exporters learn from, for example, international competitors and consumers. Based on this motivation, the internationalisation of SMEs is flourishing across the world because by determining to remain competitive in the international market, the capacity of exporting firms is enhanced. Ghana has hailed the motivation of SMEs' internationalisation. Consequently, policies and programmes are being implemented to encourage SMEs to export. Whilst the Ghanaian exporting sub-sector is growing, it is not known whether or not the resource capacity of exporting firms differs significantly from the non-exporters. The objective of the study is to compare the resource capacity between exporting and non-exporting SMEs and to establish whether or not the Ghanaian evidence compares with findings from other developing and developed economies, as well as to further inform public policy. The study draws from a firm level panel data set from the World Bank relating to SMEs from the Ghana manufacturing sector from 2000–2002. By employing the independent sample *t*-test, multivariate analysis of variance and the chi-square test a number of hypotheses are tested. The results show that the capacity of the exporting firms regarding the number of employees, productivity of staff and business experience were higher and differed significantly from the non-exporting firms. Following the results, it is recommended that current export-led programmes by the government of Ghana must be deepened because of the micro returns that are derived from export participation.

Key Words: Internationalisation, Ghana, Exporting, Non-exporting, SMEs

1 Introduction

In the 1980s, political instability, balance of payment problems, infrastructure constraints, rigid trade barriers, low foreign investment, severe shortage of consumer product, poor market performance, and decreasing output were among the challenges that caused most governments in sub-Saharan Africa (SSA) e.g. Ghana, Mauritius, Morocco, and Tunisia, to change their development framework from one of an inward orientation based on protectionist policies, to an outward orientation based on openness and liberalisation policies (Collins, 1990; Appiah-Adu, 1999). It is argued that implementation of outward orientation development framework, unlike the inward orientation framework, causes growth both at macro and micro levels in an economy, especially in developing economies (World Bank, 1993; Austria, 2001; Awokuse, 2005a, 2005b).

Whilst a number of strategies, e.g. exporting, licensing, franchising, joint venture (JV), contract manufacturing, and foreign direct investment (FDI) are open to firms that desire to enter the international market, exporting in particular is much preferred by firms from the developing countries and SMEs in general (Petersen and Welch, 2002; Nakos and Brouthers, 2002; Pearce and Robinson, 2009). The reasons for this are that: (1) the average firm from a developing country, e.g. Ghana, is small (Wolf, 2007) and exporting requires a minimum investment cost; (2) the process theory (Johanson and Vahlne, 1977) maintains that because of the degree of risk associated with international business, SMEs, must start from export business through an independent representative, to exporting through a foreign subsidiary and exporting through an FDI. The assumption of the process theory is that starting from export business and moving gradually before employing the other advance strategies, e.g. FDI, reduces risk.

The 'learning-by-exporting' hypothesis (Almeida and Fernandes, 2008) also offers much motivation regarding export participation. It assumes that exporting offers the opportunity for firms to learn new technologies and quality management. The model further assumes that because of the pressure on exporting firms to remain competitive in the international market, they are inclined to run an efficient and effective production process that enhances their capacity, as compared to the non-exporting firms. Besides, the World Bank also supports the preceding arguments and contends that export promotion and export growth are advantageous for developing economies, because exporting (i) offers opportunity for a greater capacity utilisation; (ii) exploits economies of scale; (iii) accompanies a technological progress; (iv) generates employment and boosts productivity of labour; (v) enhances the allocation of scarce resources; (vi) lightens up the current accounts pressure of a nation because

it increases a country's external earnings; and (vii) increases the total factors' productivity and ultimately the well-being of the country (World Bank, 1993).

Prior studies outside Ghana have shed light on the arguments above. For example, by analysing 11,225 firms based on a panel data set from 1989–2002 from the UK, Greenaway and Kneller (2008) found evidence to support the assumption that once firms have entered the export market, there are additional productivity benefits that are gained. By reviewing 54 studies based on data from 33 countries, e.g. the US, the UK, Canada, Germany, Latin America (Chile, Colombia and Mexico) and Asian countries (China, Korea, Indonesia and Taiwan) concerning the association between exporting activity and growth in outputs from 1995–2006, Wagner (2007) concluded that the exporters are more productive than the non-exporters.

Hansen (2010) examined the influence of exporting activity on 660 German and Austrian firms that invest in Central and Eastern European countries. In that study, the author concluded that exporters are more productive by approximately 40 per cent when compared with non-exporting firms. Using evidence from Korea, Chung and Roberts (2000) attested that firms experience significant productivity increase after entering the export market. By examining micro panel data set from Slovenia's Central Statistical Office from 1994–2000, based on 6,291 firms, Loecker (2007) also found that efficiency gains are higher for exporters than non-exporters. In addition, after controlling for the self-selection into export markets based on micro data from Slovenian manufacturing firms from 1994–2000, Lopez (2005) found that firms become more productive once they have initiated exporting activity.

Ghana is not an exception regarding promotional activities for export. The Africa Growth Opportunity Act (AGOA)—an initiative between the government of Ghana and the US government to promote export from Ghana—and the Ghana Export Processing Zone, are among the strategies to boost exporting activities in Ghana (Adjasi, 2006). Whilst the samples of the empirical studies mentioned above confirm the benefits for SMEs that participate in exporting in terms of resource capacity, it is not known whether or not the Ghanaian evidence compares with studies in the field. Following from this study seeks to compare the resource capacity of exporting and non-exporting SMEs from Ghana in order to compare the results with existing studies and also to inform public policy in Ghana. To achieve the objectives of the study, the rest of the study is subdivided as follows. Section 2, presents an overview of the theoretical framework that informs the paper. Section 3 examines prior studies on the subject. In line with the theoretical assumptions coupled with the empirical literature, hypotheses are developed and tested at the end of Section 3. Section 4 presents the data, analytical method and the results. Section 5 discusses the results, whilst Section 6 presents the conclusions and recommendations as well as the limitations of the study.

2 Theoretical Foundations

Different theories predict that the resource capacity of exporting SMEs will be different from and higher than the non-exporting SMEs. In this study, four main theoretical frameworks are integrated to shed light on the study; they are the resource-based view, the stage theory, the resource-scarcity theory, and the human capital theory.

Firstly, based on Barney (1991), the resource-based view (RBV) argues that a firm consists of a stock of the tangible, e.g. plants, human resources, financial capital and the intangible, e.g. images, brands, knowledge, and management systems, resources that are owned and/or controlled by the firm. According to Barney, for any or a group of resources to confer a competitive advantage on a firm, it must be rare, difficult to copy, have immutability and be causally ambiguous. Researchers (Westhead *et al.*, 2001b; Hall and Cook, 2009) argue that because the core characteristics that accompany Barney's framework appear difficult to test, researchers are encouraged to apply the weak version of the RBV. The weak version of the RBV follows Barney's assumptions, but relaxes the core characteristics above. Whilst the present study builds on the weak version of the RBV, the RBV remains one of the popular frameworks in understanding the export behaviour of the SMEs (Peng, 2001; Ibeh, 2003; Dhanaraj and Beamish, 2003; Ruzzier *et al.*, 2006). With regard to explaining the resource capacity of exporting and non-exporting SMEs, the weak version of the RBV implies that given two SMEs operating in the same geographical area and facing the same market conditions, the resource capacity of the exporting firms will be higher and will differ significantly from the non-exporting firms.

Secondly, the stage theory of internationalisation (Johanson and Vahlne, 1977, 1990) assumes that exporting is challenging and so by comparing exporting and non-exporting firms, exporters are more likely to differ significantly from non-exporters in terms of firm size and business experience, e.g. operating experience, and experience of workforce, e.g. older managers. Implicitly, exporting firms are more likely to be stronger in

resource capacity than the non-exporting firms. Thirdly, the resource-scarcity theory maintains that with the advent of globalisation most SMEs enter the export market primarily to build their resource capacity (McDougall and Oviatt, 1991; Oviatt and McDougall, 1994; Kuemmerle, 2002; Hessels and Jolanda 2008). The basic assumption of the model is that given similar firms operating in the same geographical area and facing the same market conditions, the exporters will possess a much higher resource capacity than the non-exporting firms.

Fourthly, the human capital theory (Schultz, 1971; Sakamota and Powers, 1995; Psacharopoulos and Woodhall, 1997) assumes that an employee with a higher human capital will achieve a higher productivity than those who have a lower human capital. Following the researchers above, the human capital concerns the stock of knowledge and/or the traits that an employee possesses (both innate and acquired), which impacts on productivity. It includes the investment the worker creates in himself that enhances his economic productivity. Among the moderating factors, formal education is seen as critical in human capital development (Olaniyan and Okemakinde, 2008). The reason for this is that education raises the productivity and efficiency of a workforce because it raises the cognitive capability of an employee. According to the World Bank (1993) improvement in education contributed to East Asia's economic growth. Van-den-Berg (2001) argues that the countries that are at the forefront of technology, e.g. the USA, the UK, and Japan, possess the most educated population in the world. Export-market operation appears complex and difficult because of the degree of sophistication involved, e.g. sophisticated consumers, suppliers, government laws, and competitors. Implicitly, the human capital requirement of the exporting firms will be different from and higher than the non-exporting firms. In conclusion, the human capital theory assumes that because of the complexities involved in the export business, the human capital base of an exporting firm will be higher and different from the non-exporting firms.

3 Prior Studies and Hypothesis Formulation

3.1 Firm Size

Firm size is one of the firm capacity variables associated with exporting activity (Mittelstaedt *et al.*, 2003). It is argued that export initiation involves fixed costs and when compared to large multinational firms, SMEs lack the capacity to bear the fixed cost that is associated with export business (Hall and Cook, 2009). For example the cost of searching for information will be higher in international market than in the domestic market. The importance of size with regard to export initiation supports the assumption of the RBV, which views firms as consisting of heterogeneous elements of resources that determine their strategic initiatives, e.g. export initiation. Likewise, the stage theory argues that export initiation is a function of a great resource base. Empirical evidence exists to suggest that firm size is positively associated with exporting activity. Implicitly exporting firms tend to be larger than the non-exporting firms in terms of firm size. For example, by employing the data set from 2002–03 across Kenya, Tanzania, and Uganda, Aggrey *et al.* (2010) found evidence to suggest that firm size is positively associated with exporting activities. Using a longitudinal data set from 1997–2001, Majocchi *et al.* (2005) confirmed that there is a positive association between firm size and export participation. In this study, firm size is defined by the total number of full-time employees, in line with Hall and Cook (2009). Overall, following the theoretical assumptions of both the RBV and the stage theory, coupled with the foregone empirical evidence, the following hypothesis is posed:

H1: The size of the exporting firm will be significantly higher than and different from non-exporting firms.

3.2 Business Experience

Balabanis and Katsikea (2003) argue that a firm's history and/or past experience determines what behaviours are acceptable and unacceptable. Following Teece *et al.* (1997), a prior industry experience offers competitive advantage to firms because it is regarded as a tacit resource. It can be argued that firms that have operated in an industry over time may gain an advantage by having access to, say, specialised distribution channels and customer loyalty. In addition, lenders and creditors in general find it less risky to deal with firms that possess a long-operating track record relative to those that are new and young and who, for that matter, do not possess a long track record. Another argument is that firms that possess long business experience possess cost advantages. The reason for this is their having experience and/or learning curve effects that newer and younger firms do not possess.

The stage theory contends that prior experiential knowledge is one of the key requirements for succeeding in the export market. According to the stage theory, the experiential knowledge is mostly built over time, putting the newer and the younger firms at a disadvantage. Overall, having a higher prior industry-operating experience constitutes a significant resource base in line with the assumptions of both the stage theory and the RBV.

Empirically, based on a longitudinal study from Italian manufacturing firms, Majocchi *et al.* (2005) found significant association between a firm's business experience and export involvement. This supports the argument that younger firms need time to build up the necessary business experience in order to succeed in the domestic and the export market. In line with researchers (Leonidou, 2000; Chen and Martin, 2001; Majocchi, 2005) the firm age is used in this study as the proxy for business experience. Therefore, based on the assumptions behind the stage and the RBV theories as well as the empirical motivation above, the following hypothesis with regard to business experience and export participation is examined:

H2: The business experience of the exporting firms will be significantly higher than and different from non-exporting firms.

3.3 Workforce Education Level

The degree of a workforce's skills and competence are linked to their level of education, and so the higher the level of workforce education, the more the likelihood that a firm consists of a competent workforce. Following Barrow (2000) higher education offers the workforce higher symbolic skills, e.g. conceptual, mathematical, and visual; research skills, e.g. critical thinking and analysis; and communications skills, e.g. oral and written, which benefit the firms that employ such a skilled workforce. So, the skills set of a firm's educated workforce can be used as one of its strategic cornerstones for building as competitive. It is argued that with the advent of technological advancement, the demand for a highly educated workforce is common among contemporary businesses. According to these researchers, most technological innovations require complex installation, maintenance, and operations that call for highly educated workforce to operate. In the light of international business operations, the researchers maintain that the pace of change, both in technology and in the competitive conditions, call for a more highly educated workforce. Implicitly, the swifter the speed of change in technology from the international market, the more employers require the qualified educated workforce to remain competitive.

An educated workforce can easily adapt to changes, and may learn and use technology and/or complex software at a faster pace to produce good quality products and services, when compared to a low-skilled workforce (Thurow, 1992). Comparing the international business environment to the domestic business environment, the intensity of changing trends such as transforming customer demand, government requirements, competition, and business processes will be higher in international operations than in domestic ones. Consequently, the exporting firms will require a more educated workforce in order to keep up with the pace of changing trends vis-à-vis the firms that remain concentrated on the domestic market. This argument is motivated by the assumptions of the human capital theory, which emphasises the benefits of education to a workforce's human capital, and RBV, which argues that a firm's strategic initiative such as the capacity to respond to changing trends from the external environment is a function of the nature of its resource base, e.g. having an educated workforce. So, following the assumptions of the RBV and the human capital theory, the association between an educated workforce and exporting, as well as the non-exporting firm, is hypothesised as follows:

H3: The education level of the exporters' workforce will differ significantly from non-exporters

3.4 Workforce Work Experience

Besides the level of education, another important variable that every employer looks for from employees is their experience level. Researchers concur that the workforce's level of experience creates tacit knowledge, which in turn impacts positively on their levels of productivity (Lane and Lubatkin, 1998; Lepak and Snell, 1999; Ehrenberg and Smith, 2000). According to scholars, (von Hippel and Tyre, 1995; Hatch and Mowery, 1998) the workforce work experience is acquired from learning by *doing* and/or learning by *using*, which is based on the number of years spent on the job. In line with Teal (2008), work experience is measured in this study as the individual's total years of work experience or time with a particular job or organisation since the beginning of that job. Unlike the inexperienced workforce, an experienced workforce is less likely to make unnecessary wastage, e.g. rework, delay in material handling, and customer complaints.

Consequently firms will achieve higher gains by having a large proportion of their workforce that is experienced at their respective tasks. For example, by using an integrated model of work experience, Tesluk and Jacobs (1998) found a positive association between work experience and performance. Using a panel data set from Switzerland, Richter and Schmidt (2006) confirmed the positive association between experience and performance. Concerning exporters and the non-exporters, the stage theory predicts that experience is one of the critical success factors in the export market. As a result of the complexities, coupled with advanced competition in international business, the stage theory assumes that exporters will have a more experienced workforce compared with the non-exporters (Johanson and Vahlne, 1977). In the light of the assumption of the stage theory and the empirical evidence above, the following hypothesis is formulated:

H4: The length of work experience in exporting firms will differ significantly from non-exporters

3.5 Workforce Productivity

Workforce productivity is important to both practitioners and policy makers alike. For instance, with regard to public policy, total productivity assists public policymakers to decide on projected gross domestic product, income tax, government expenditure, welfare, and public borrowing. At the firm level, workforce productivity increases outputs because a better information about workforce productivity informs managers to determine sales projection, administrative, selling and production expenditure. It is contended that the level of a firm's value addition is determined by the level of the productivity of its workforce (Jajri and Ismail, 2009; Kapyła *et al.*, 2010).

Following the demanding nature of international market operation, it is plausible to hypothesise that the workforce productivity of exporting firms will differ significantly from non-exporters. However, productivity is measured in different ways, there is total-factor productivity and partial productivity (Tangen, 2005). According to Tange (2005), whereas partial productivity concerns, the use of two or more inputs to produce an output, total-factor productivity uses all inputs to generate an output. In line with Abor and Harvey (2008), this study uses the partial productivity, operationalised as the output per employee (i.e. labour productivity). Consequently, with regard to workforce productivity and export business the following hypothesis will be explored in the study:

H5: The productivity of workforce in exporting firms will differ significantly from non-exporters.

4 Data and Analytical Method

The study uses a firm level panel secondary data set from the World Bank, the Regional Project on Enterprise Development (RPED)² relating to SMEs from the Ghana manufacturing subsector from 2000–02. The population of the data set consists of the manufacturing firms in Ghana. The original sample was drawn randomly from a list of firms containing Ghana's Census of Manufacturing Activities, a broader industry directory based on the industry, the size, and location stratification (Teal, 2002; Biesebroeck, 2005). A questionnaire was the main data collection instrument used to capture the survey part of the study on which this study is based. According to Teal (2002), the original questionnaires were designed and structured by a research team from the World Bank with the aim of ensuring that the questions could be comparable over time (Harding *et al.* 2004). The existing dataset was unbalanced, but following Wooldridge (2006) and Stock and Watson (2003), the techniques employed in balanced datasets could also be employed in unbalanced data situations. Although the panel data ranges from years 1991–2002, in this study, the author had access to only the data from the wave of 2000–2002. The study was jointly executed in Ghana by the World Bank, the Oxford University, the Ghana Statistical Service, and the University of Ghana. The dataset has a high reliability and so has been used by other researchers. Some of the peer reviewed papers (Frazer, 2005) read and cited in this study are publications based on the RPED dataset. Based on its reliability, the World Bank and the Oxford University in the UK have time and again been inviting academics and other research institutions to draw on the data set to advance knowledge. The sample size used in this study consists of 110 firms, comprising 17 exporting and 93 non-exporting firms. Tables 1 and 2 below show the composition of the sample.

² The dataset was accessed via <<http://www.csae.ox.ac.uk/datasets/main.html>>.

Table 1: Composition of the Sample – Continuous Variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
<i>Workforce</i>					
<i>education</i>					
Exporters	49	11.12044	3.54291	2.629495	21.09982
Non-exporters	264	9.166813	2.369534	0	14.56376
<i>Workforce</i>					
<i>Experience</i>					
Exporters	49	11.23013	3.502951	2	27.44974
Non-exporters	264	9.665795	4.885213	4.501983	22.23863
<i>Workforce</i>					
<i>Productivity</i>					
Exporters	48	14.75462	1.11065	13.18841	16.58752
Non-exporters	272	13.87208	4.885213	11.51917	17.19426
<i>Business</i>					
<i>Experience</i>					
Exporters	51	24	11.41403	8	53
Non-exporters	270	22.05556	10.38303	6	52

World Bank (RPED) (2000-02)

Table 2: Composition of the Sample – Categorical Variable

Variable	Freq	Per cent	Cum
<i>Firm Size</i>			
<i>Non-exporters</i>			
Micro (1–5)	58	21	21
Small (6–29)	138	49	70
Medium (30–99)	83	30	100
Total	279	100	
<i>Exporters</i>			
Small (6–29)	3	6	6
Medium (30–99)	48	94	100
Total	51	100	

Source: World Bank (RPED) (2000-02)

Table 1 (see above) shows that the business experience of an exporting firm is two years higher than the non-exporting matching part. Whilst the average education level of the exporting workforce shows 11 years, the average education level of a worker from the non-exporting firm is 9 years. Table 2 shows that the micro firm hardly exports from Ghana, which supports the stage theory that stresses the importance of firm size regarding export initiation (Johanson and Valhe, 1977). Among the exporting firms, the medium-sized firms are highly represented, accounting for 94% compared to the small firms that accounted for 6%. Table 2 shows that the micro firm in Ghana does not export, confirming the assumptions from the stage theory.

4.1 Operationalisation of Variables

Overall, there are five variables considered in the study based on the five hypotheses (see subsection 1.3). Whilst Table 1 contains four of the variables, i.e. workforce education level, business experience, workforce productivity, and workforce experience, Table 2 (see above) contains only one (the categorical variable, i.e. firm size). The variables are operationalised as follows:

- 1) Firm size = the number of full-time employees (Hall and Tu, 2004; Hall and Cook, 2009).
- 2) Firm age (business experience) = the number of years a firm has existed, since starting operation (Toni and Nassimbeni, 2001; Hall and Cook, 2009).
- 3) Workforce Education Level = aggregate levels of employees' years of education (Cerrato and Piva, 2007).
- 4) Workforce productivity = Output per employee (Abor and Harvey, 2008).
- 5) Workforce Experience = the number of years an employee has spent on the job (Teal, 2008).

5 Analysis and Results

In line with similar studies (Elango, 2000; Brush *et al.*, 2002; Ruzzier *et al.*, 2006) the multivariate analysis of variance (MANOVA), the independent sample *t*-test, and the chi-square test of independence are the main analytical techniques applied on the data set. The one-way MANOVA is first employed to ascertain whether any differences exist on the selected interval resource variables, e.g. business experience, firm size, workforce experience, workforce education, and productivity. The MANOVA method is applied because unlike one-way analysis of variance (ANOVA) there are more than two continuous dependent variables and only one categorical independent variable (exporters and non-exporters) with two levels (Chen *et al.* 2003; Pallant, 2007). The MANOVA approach is used to compare the two groups, i.e. the exporters and the non-exporters, in terms of their means on the selected dependent continuous variables. The method tests the hypothesis that the population means on the selected dependent variables do not vary across exporting and the non-exporting firms. With the MANOVA outputs, the Stata statistical package reports four sets of multivariate test statistics, namely Wilks' Lambda, Pillai's Trace, the Lawley-Hotelling trace, and Roy's Largest Root test statistics with a corresponding *F* statistic and associated *p*-values. The four statistical tests sought to find out whether there are statistically significant differences between the two groups on the linear combination of the selected interval variables. In order words, the four statistics test the null hypothesis that the predictor variable, i.e. the export dichotomy, would have no influence on either of the outcomes. They are then evaluated with regard to the *p*-values (Chen *et al.*, 2003).

According to Tabachnick and Fidell (2007) when an effect has only two levels, the *F* tests for all the four statistics are identical. Tabachnick and Fidell (2007) as well as Pallant (2007) recommend that of the four multivariate statistics, Wilks' Lambda Statistic is the most commonly reported statistic in journal articles. They further recommend that when data does not meet some of the assumptions of the MANOVA test, Pillai's Trace should be chosen over the other three, because in such circumstances, Pillai's statistic is the most robust. In this output, because the effect has only two groups, all the four statistics reported the same *F*-test results in Table 3 (see below).

Table 3: Stata MANOVA Output

Number of Observations: 298			
W = Wilks' Lambda, L = Lawley-Hotelling trace			
P = Pillai's trace, R = Roy's Largest Root			
Source	Statistic	df	F(df1), df2) = F Prob> F
Exports	W 0.8487	1	4.0 293.0 13.05 0.0000 e
	P. 0.1513		4.0. 293.0 13.05 0.0000 e
	L. 0.1782		4.0 293.0 13.05 0.0000 e
	R. 0.1782		4.0 293.0 13.05 0.0000 e
Residual		296	
Total		297	

e = exact, a = approximate, u = upper bound on F

So from the MANOVA output above, based on the Wilks' Lambda Statistics, the null hypothesis that there are no statistically significant differences between the exporting and the non-exporting firms on the linear combination of the dependent variables is rejected at 0.01 significant levels. Therefore, based on the output from the MANOVA it can be concluded that the resource capacity of exporting firms differs significantly from the non-exporting firms. However, a weakness in the MANOVA analysis is that it provides an overall test of the equality of means for the two groups in relation to the selected outcome-dependent variables. It does not tell the "between subject effects", i.e. which of the dependent variables the two groups differ on; all of them or some? Again, the MANOVA output does not show the direction of the difference, i.e. whether the mean of the exporters is higher than the non-exporters or not. Due to these limitations, Brush *et al.* (2002) recommend that the independent sample *t*-test can be further employed to examine the differences in the individual interval variables in relation to the export dichotomy, whilst ascertaining the direction of the differences in both groups. Consequently, Table 4 (see below) shows the results of the *t*-test, variable-by-variable.

Table 4: Workforce Education Level

Group	Obs.	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
0=non-exporters	264	9.166813	.1458347	2.369534	8.879661 9.453965
1= exporters	49	11.12044	.50613	3.54291	10.1028 12.13808
Combined	313	9.472653	.1513473	2.677607	9.174862 9.770443
Diff		-1.953628	.4021953		-1.16226
diff = mean (0) – mean (1) t = -4.8574					
H0: diff = 0 Degree of freedom = 311					
Ha: diff < 0 Ha: diff != 0 Ha: > 0					
Pr (T < t) = 0.0000 Pr (t) = 0.0000 Pr (T > t) = 1.0000					

Table 5: Business Experience

Group	Obs.	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
0=non-exporters	270	22.05556	.6318911	10.38303	20.81147 23.29964
1= exporters	24				
	51		1.598283	11.41403	20.78975 27.21025
Combined	321	22.36449	.5893357	10.55882	21.20502 23.52395
Diff		-1.944444	1.610983		-5.113939 1.22505

diff = mean (0) – mean (1) t = -1.2070
 H0: diff = 0 Degree of freedom = 319
 Ha: diff < 0 Ha: diff != 0 Ha: > 0
 Pr (T < t) = 0.1142 Pr (| t |) = 0.2283 Pr (T > t) = 0.8858

Table 6: Workforce Productivity

Group	Obs.	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
0=non-exporters	272	13.87208	.0673431	1.11065	13.7375 14.00467
1= exporters	48	14.75462			
	48		.1228265	.8509669	14.50753 15.00172
Combined	320	14.00446	.062606	1.11993	13.88129 14.12764
Diff		-.8825391	.1684892		-1.214034 -.5510447

diff = mean (0) – mean (1) t = -5.2380
 H0: diff = 0 Degree of freedom = 318
 Ha: diff < 0 Ha: diff != 0 Ha: > 0
 Pr (T < t) = 0.0000 Pr (| t |) = 0.0000 Pr (T > t) = 1.0000

Table 7: Workforce Work Experience

Group	Obs.	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
0=non-exporters	264	9.665795	.3006641	4.885213	9.07378 10.25781
1= exporters	49	11.23013	.5004216	3.502951	10.22397 12.2363
Combined	313	9.910691	.2670941	4.725377	9.385158 10.42622
Diff		-1.564339	.7308532		-3.002381 -.1262967

diff = mean (0) – mean (1) t = -2.1404

H0: diff = 0 Degree of freedom = 311

Ha: diff < 0 Ha: diff != 0 Ha: > 0

Pr (T < t) = 0.0165 Pr (| t |) = 0.0331 Pr (T > t) = 0.9835

From Tables 4 to 7, because exporting is defined as a dummy variable, zero is used for the non-exporting firm whilst one is used for the exporting firm (0 = non-exporting and 1 = exporting). The results of the independent sample *t*-test above (Tables 4–7) show that the null hypotheses that there is no difference between the exporters and the non-exporting firms based on the mean differences of the four continuous variables above is rejected at 0.5% level of significance. In addition, the output from the independent sample *t*-test confirms that the capacity of the exporting firms in the light of workforce education, productivity, and work experience are significantly different and higher for the exporting firms than for the non-exporting firms, also at 0.5 % level of significance. Concerning the business experience, there is no statistically significant evidence to reject the null hypotheses (see Table 5 above).

As with the MANOVA analysis, a weakness from the independent sample *t*-test is that it deals only with dependent continuous variables (workforce education, productivity, and work experience) against the export dichotomous variable. So Chen *et al.* (2003) recommend that where the dependent variable possesses two or more levels, e.g. firm size in this study, the chi-square test of independence is employed to compare whether the frequency of cases found in the selected categorical variables have any associations. With the chi-square test, Stata statistical software uses the Pearson chi-square option to obtain the test statistic and its associated *p*-value. The result of the chi-square test based on the size of the firm variable is shown in Table 8 (see below).

Table 8: Firm Size

	Exporters	Non-exporters	Total
Medium (30–99)	48	83	131
Micro (1–5)	0	58	58
Small (6–29)	3	138	141
Total	279	513	330

Pearson Chi2 (2) = 74.7720 Pr.= 0.000

From Table 8, the null hypothesis that there is no association between the size of the firm and whether or not a firm will export is also rejected at 0.05 % level of significance level. So the output from the chi-square test indicates that there is statistically significant evidence to confirm that there is certainly an association between the size of the firm and whether or not it will export. Table 9 summarises the overall results based on the five hypotheses.

Table 9: Summary of Results for Hypotheses

Hypotheses	Variable	Expected Sign	Support hypothesis for
H1	Firm size	+	Yes
H2	Business experience	+	No
H3	Workforce education level	+	Yes
H4	Productivity	+	Yes
H5	Workforce Experience	+	Yes

5.1 Discussion

Hypothesis 1 is supported because the size of the exporting firms differs significantly from the non-exporting firms. Theoretically, the finding supports the three theoretical frameworks. Firstly, in the light of export success, the RBV assumes the importance of one's own internal resource capacity, i.e. the size of the workforce (Barney, 1991; Westhead *et al.*, 2001b; Hall and Cook, 2009). Secondly, the stage theory of internationalisation maintains that the complex demand from export business requires and/or favours firms with a large size (Johanson and Vahlne, 1977). The implicit assumption is that the higher the number of the workforce, the more the variety of skills and competencies available at the disposal of the firm. Thirdly, the higher size of the exporting firms supports the resource-scarcity model, which contends that firms engage in export business to build resource capacity (Kuemmerle, 2002; Hessels and Jolanda 2008). Furthermore, the finding supports the following studies: a Kenya, Tanzania, and Uganda study (Aggrey *et al.*, 2010) found that exporters are larger in size than the non-exporters; an Italian study (Majocchi *et al.*, 2005) also confirmed that there is positive association between firm size and export participation as well as a UK study by Hall and Cook (2009).

Hypothesis 2 never received support, implying that the exporting firms did not differ significantly from the non-exporting firms with regard to business experience. This finding counters the assumption behind the stage theory, which proposes that because of the importance of prior experience in export business, export firms are more likely to possess a higher industry-operating experience than non-exporters (Johanson and Vahlne, 1977). Hypothesis 3 is supported, implying that exporting firms differ significantly from the non-exporting ones regarding the education level of their workforce. Hypothesis 4 is also confirmed, implying that exporting firms differ significantly from the non-exporting firms with regard to workforce productivity. Implicitly, exporting firms are more productive than non-exporting firms. Hypothesis 5 is supported, indicating that the average experience of workforce from the exporting firms appears to be higher and differs significantly from the non-exporting firms. This result concurs with the tenets of the stage theory of internationalisation, because following the stage theory export business flourishes with firms that possess a workforce with higher work experience (Johanson and Vahlne, 1977). Besides the stage theory, the findings also support the viewpoint of the RBV (Barney 1991; Westhead *et al.*, 2001b; Hall and Cook, 2009). For example, where a workforce's extensive industry experience enhances the competitiveness of a firm in the export market, one can therefore contend that the tenets of the RBV are supported.

Furthermore, it is clear from the results above that the capacity of the exporting firms is higher than and different from the non-exporting firms in a significant way. These findings support the learning-by-exporting hypothesis (Arnold and Hussinger, 2004; Almeida and Fernandes, 2008). The learning-by-exporting research too maintains

that exporting presents opportunity for firms that possess a small resource capacity. Consequently, the findings from this study counter researchers who wholly advance the self-selection hypothesis, implying that because the export market seems a competitive one, only a firm with a large resource capacity is encouraged to enter (Roberts and Tybout, 1997). Besides, by confirming a much higher capacity of the exporting firms, the resource-scarcity theory (Oviatt and McDougall, 1994; Kuemmerle, 2002; Hessels and Jolanda, 2008) is also supported. Overall, the findings of the study confirm the following empirical studies concerning the topic: An Ethiopian study (Bigsten and Gebreeyesus, 2009); an African study based on Burundi, Cameroon, Cote d'Ivoire, Ghana, Kenya, Tanzania, Zambia and Zimbabwe (Biesebroeck, 2005); the UK's study (Girma *et al.*, 2004); and a Slovenian study (De Loecker, 2007).

6 Conclusion and Implications

6.1 Conclusion

Previous studies, (Brush *et al.*, 2002; Delgado *et al.*, 2002; Ruzzier *et al.*, 2006; De Loecker, 2007) have sought to answer the question of whether or not the resource capacity of exporting and non-exporting will be different in a significant way. Yet, to date few studies (Bigsten *et al.*, 2004) extend this proposition in the context of a sub-Saharan African context. Consequently, the paper has examined the hypothesis that given a set of resources, i.e. firm size, business experience, workforce education, work experience, and productivity, the capacity of the exporting firms will be higher than and different from the non-exporters. To test this hypothesis, the MANOVA, an independent sample *t*-test, and the chi-square test of independence were applied on a World Bank panel data set based on manufacturing firms from Ghana from 2000–02. Based on the analysis, the result of the study has shown that four out of a set of five resources of the exporting firms differ significantly from the non-exporting ones, i.e. firm size, productivity, workforce education, and workforce's work experience. The use of the various tests above that proof and/or confirm the same results validates the robustness of the findings. Overall, the evidence from the Ghanaian context compares favourably the motivation from the World Bank (1993), learning-by-exporting hypothesis (Almeida and Fernandes, 2008), the RBV (Hall and Cook, 2009), the stage theory (Johanson and Vahlne, 1977), human capital (Schultz (1971), and the resource-scarcity theories (Kuemmerle, 2002; Hessels and Jolanda 2008) and the related empirical findings in the study.

6.2 Implications

Firstly, with regard to theoretical implications, the findings extend the basic assumption of the RBV of the firm (Barney, 1991; Westhead *et al.*, 2001b; Hall and Cook, 2009), the stage theory of internationalisation (Johanson and Vahlne, 1977), the resource-scarcity theory (Arnold and Hussinger, 2004; Hessels and Jolanda 2008), the human capital theory (Schultz, 1971; Sakamota and Powers, 1995; Psacharopoulos and Woodhall, 1997) and the learning for exporting hypothesis with regard to the Ghanaian context. Secondly, as regards practical implications, the lack of significant difference between the business experience of the exporters and the non-exporting firms counters the *liability of newness* hypothesis that upholds differences in firms' age regarding their capacity to perform. The *liability of newness hypothesis* holds that with other things being equal, older firms perform better than the new and younger firms because of the differences in age. According to the model, an industry's operating experience consisting of knowledge (tactics and routines) accrues to firms' overtime and so poses a liability to new and younger firms.

In the context of the model, the liabilities to every new firm consist of: the time to search for and develop knowledge, to understand industry routines, as well as building the inter-firm networks both within and outside the industry. Following the model, because they have already acquired the knowledge and the routines from the industry, older firms will tend to perform better than the younger and newer firms. In this study, the lack of significance between the two sets of firms based on their business experience (firm age) implies that with the advent of the globalisation, e.g. advancement in information, transportation, and communication technology, information and knowledge accrues to firms at a faster pace than ever. This means that nowadays differences in the firms' age may not matter to a larger extent, and therefore being new and younger firms may not pose the greatest liability as before, as suggested by the *liability of newness hypothesis*. Therefore, following globalisations of SMEs it is seen that owners/managers that possess ambitions for the international market must not wait unnecessarily before they take action. Such firms must take advantages from the globalisation processes and avail themselves to the Worldwide Web and other sources of information to compete side-by-side with the older firms to enter the export market.

In line with the empirical evidence concerning the effect of human capital and productivity (World Bank, 1993; Olaniyan and Okemakinde, 2008), owners/managers that plan to operate beyond the domestic market must make contribution to their workforce's education. The reason for this is that owners/managers stand to gain directly, e.g. with innovation and inventions resulting from having educated workforce. It can be argued that employees' skills and competencies are linked to their level of education and, as such, with the explosion of complex machines and software in most business processes, firms stand to gain when they possess an educated workforce. Besides, following the enhanced cognitive capacity that flows from the educated workforce, a prospective international firm will be in the position to match its human resource base in the light of the complexity and the competition that pertains in the international market arena. This is also in line with firms with a large size. The size of the firm operationalised as the total number of employees can be argued to confer many benefits to firms. It can be argued that different employees will bring to the disposal of their respective firms different sets of skills to meet different challenges. Consequently, entrepreneurs from Ghana who plan to enter the international market must consider improving the size of their firms in order to meet the diverse challenges from the international market.

6.3 Limitations and Implication for Future Research

The study employs only three waves of the of the panel data set (from 2000–02) to analyse the research hypotheses, because of lack of access to the other waves of the data set. Consequently, a longitudinal data set that goes beyond the wave of 2002 will provide more robust conclusions. So readers must bear this in mind when interpreting the results. Moreover, because the study uses five resource variables, future study could explore extended variables in order to shed more light on the results. Besides, the firms in the study were drawn from the manufacturing subsector of Ghana, and so the results are generalised to Ghana and to the said subsectors. This limitation opens a research avenue to extend the study in other subsectors from Ghana and/or similar subsectors in different countries of sub-Saharan Africa. In addition, one hypothesis (*H2*) was not confirmed and so additional study is needed to confirm or reject the findings of the study. Besides, the current data set looks a bit old and so future study could explore a recent data set by using the same methodology.

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