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The Barriers to Growth in Ghana

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ABSTRACT. This paper presents the results of ordered logit regression models of the problems faced by 500 entrepreneurs from six regions of Ghana against the characteristics of the entrepreneurs and their businesses and whether these were systematically related to a list of 37 factors that they perceived as limiting their ability to achieve their objectives in the period 2002–2005. The results show that the education, but not the sex or age of the entrepreneurs were related to business barriers. Family Businesses, growing businesses, those providing training and those which did not spend money on R&D were more likely to encounter business barriers. The findings of the research also revealed that in general firms in conurbations were more likely to encounter barriers.

KEY WORDS: Entrepreneurship, business barriers, business objectives, Africa.

JEL CLASSIFICATIONS: D2, L21, L26, M13.

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There is a vast entrepreneurship and small business literature which is concerned with explaining the factors behind successful firms, particularly papers looking at the determinants of growth (Littunen and Tohmo, 2003; Yasuda, 2005) and testing Gibrat's law of proportionate growth (Yang and Huang, 2005). There has been less research into exploring the problems which are encountered by entrepreneurs in their business activities, and most of the attention has been upon developed nations such as the US and the UK (Orser et al., 2000; Storey, 1994; Smallbone et al., 1995). Previous studies have examined barriers to growth in Hong Kong (Moy and Luk, 2003) and in Lithuania (Aidis, 2005). However, there have been very few studies into the barriers and problems encountered by entrepreneurs in Ghana, an emerging or developing nation, and Africa more generally (Mambula, 2002; Tagoe et al. 2005; Trulsson, 2002; Wolf, 2004).

The role of entrepreneurs in promoting the economic development of nations has been widely recognised (McPherson, 1996; Mead and Liedholm, 1998). Although commission after commission (Ghanaian Enterprise Development Commission, 1975; Ghana Business Promotion Act 1970) have been set up in the past to investigate the problems and to provide institutional support for enterprise development in Ghana (Ninsin, 1989), there have been comparatively few large scale studies of Ghana (Wolf, 2004), and amongst research adopting multivariate regression techniques there is a further paucity of research.

This paper presents the results of ordered logit regression models of the problems faced by 500 entrepreneurs from six regions of Ghana against the characteristics of the entrepreneurs and their businesses and whether these were systematically related to a list of 37 factors that they perceived as limiting their ability to achieve their objectives in the last 3 years, and they were also given the opportunity to indicate if there were other factors not included in the list. Respondents indicated whether the factors fell into one of four categories, not important, moderately important, important, or crucial limitation. This ordered relationship resulted in the need to use ordered logit regression models.

An understanding of the problems faced by entrepreneurs is of great importance to academics and also policy makers, so that our understanding of entrepreneurship can be advanced and also that public sector money is advantageously spent for the benefit of fostering growth. Whilst the focus of the research is Ghana, comparisons with business problems

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and difficulties in the US, UK and other countries will also be made in the paper.

This study is therefore aimed to identify and understand the nature of entrepreneurship in Ghana and to identify the problems, which entrepreneurs encountered. If Ghana, and Africa more generally are to grow and to achieve levels of prosperity which are closer to those levels enjoyed in developed countries such as the US then there is a need to better understand entrepreneurs' problems.

The next section briefly reviews the previous research. The third section describes the data set and methodology and the hypotheses, which are tested against the characteristics of the businesses and the entrepreneurs. The fourth section presents the main research findings. Lastly, a conclusion completes the paper.

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Tagoe et al. (2005) used six case studies to examine the impact of financial sector liberalisation (FSL) policies on the formal management of small and medium-sized enterprises in Ghana. Tagoe et al. (2005) found that the main financial challenge facing SMEs was access to affordable credit.

Wolf (2004) analysed a data set of 100 enterprises in the formal commercial agricultural and manufacturing sectors in Ghana. Wolf's (2004) study examined exporters, performance indicators, and the main business obstacles. Wolf (2004) used a six point scale of: not, little, somewhat, quite, very, and extremely, and reported the results of 17 factors, but did not relate these to the characteristics of the enterprises or their owners. She found that interest rates (62%), access to credit (52%), depreciation (46%) and inflation (43%) were the four most important business obstacles in Ghana, where the percentage in parentheses were the combined very or extremely problematic scores.

Mambula (2002) interviewed 32 small business entrepreneurs in Nigeria as well as government officials, bank representatives and other experts. He reported the following four factors for the thirty-two respondents, lack of financing (72%), poor infrastructure (44%), difficulty getting machines and spare parts (41%), and difficulty getting raw materials (34%). Mambula (2002) also argued that some entrepreneurs indicated that government policies and attitudes of public officials adversely affect their businesses, especially the harsh economic policy of the structural adjustment programme (SAP) implemented by the government in 1986. However, he did not quantify this statement.

Aidis (2005) examined the inter-related effect of nineteen factors grouped into four types of barrier, (1) formal, (2) informal, (3) environmental and (4) skills in Lithuania. Aidas (2005) using a sample of 322 business owners found that perceived formal barriers were associated with informal barriers such as corruption. She also found that environmental barriers were associated with skill barriers such as management problems.

Orser et al. (2000) used a survey of 1004 small and medium-sized Canadian businesses to investigate the problems that confront owners and managers at different stages in business development in order to better understand the growth process. They found that the severity of the problems varied by firm attributes, including size. Also Orser et al.'s (2000) results showed that micro operations were more likely to encounter problems of demand, the availability of alternative sources of finance, a lack of information about financing options, and a lack of financial expertise. Female business owners were more likely in their study to report a lack of access to capital as a problem.

Moy and Luk (2003) used Kazanjian's (1988) four stages of business growth, conception and development, commercialisation, growth, and stability, and a modified list of obstacles, which were tested by Theng and Boon (1996) in Singapore. Moy and Luk (2003) looked at obstacles that impeded the growth and success of Hong Kong SMEs, and their level of influence in each stage of the life cycle model. They found that competition was the major obstacle encountered by SME owner-managers in each of the four stages of development; capital was shown to be the major problem the owner-managers had to

overcome at the conception stage, and also as they grew from commercialisation to growth.

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This paper uses a survey of 500 entrepreneurs located in six regions of Ghana where approximately 91% of all businesses in the country are found (Ghana National Industrial Census, 1989), and this represented a response rate of 83.2%. The survey is drawn from the sectors of manufacturing (193), services (217), and agriculture (90), where the numbers in parentheses are the number of entrepreneurs in the respective sectors. The main criteria for selection was that the entrepreneur employed between four and 50 full-time workers. This range of employment was selected because they are the focus of the Ghanaian Government policy and are also the businesses served by the support organisations such as Empretec Ghana Foundation. In each case the entrepreneurs completed the written questionnaire which was given to them in person, by the researcher over the period of January to June 2005.

The 37 factors which could be barriers to entrepreneurs' firms achieving their objectives in the three previous years, 2002–2005, covered a broad range of factors and these have been categorised into the following seven groups: (i) finance, (ii) market, (iii) managerial and technical, (iv) inputs, (v) economic and regulatory, (vi) socio cultural, and (vii) other. The piloting of the survey minimised the number of factors, which fell within the other group of factors.

Having outlined the data, the paper now turns to introducing the characteristics of the businesses and the entrepreneurs and the relationships that are expected against the entrepreneurs' perceptions of the factors which have and have not hindered their ability to meet their business objectives.

3.1. Family

A family business is defined in this paper as any business which employs one or more family members who are related to the person running the business, and it is owned by that person and their family. In other words, an entrepreneur and their family control the business and there is at least one other member of the family working in the business. The contribution of family business in income generation, job creation and the development of the economy cannot be underestimated. Even in developed countries family business contributes more than a half of the total national income and a similar proportion of the labour force (Kets de Vries, 1996; Morris et al., 1997). In Africa more than 90% of all businesses are classified as small and are privately owned (Saffu, 2004). However, there are few quantitative studies of Ghana (Wolf, 2004).

A total of 72.4% of businesses were family businesses. In Ghana as with many other African countries the entrepreneurs are put under pressure to provide employment and resources for their immediate and extended family. This suggests that the people recruited on the basis of being a member of a family may not necessarily have the skills, experience and expertise that the entrepreneur was seeking; or the entrepreneur may not have been looking to recruit, but family ties resulted in the family member being employed. The employing of a potentially less desirable, and possibly an unwanted group of workers may result in the business being less able to deal with day-to-day problems than those businesses which recruit on the basis of ability. Thus, it is expected that the family businesses will have more difficulties than non-family businesses in achieving their business objectives.

3.2. Innovation

The literature on business growth and performance has argued that the survival or prosperity of every business is perhaps determined by its ability to innovate (Barringer et al., 2005). Whilst Drucker (1994: 137) has placed an even greater degree of importance upon innovation and has argued that 'any enterprise that does not innovate inevitably ages and declines'.

In the survey the approach which was adopted to measure innovation activity was similar to that of the European Union Harmonised Community Innovation Survey (CIS) in that the respondents themselves identify whether innovation activity did or did not take place. In other words, a 'subject' approach is followed

rather than an 'object' based approach where innovation counts are observed on the likes of patent statistics. Ghana, and Africa more generally, are emerging markets, and the market for patents is still in its infancy and this together with the CIS precedent explains why a 'subject' approach was followed.

Respondents were asked to indicate whether they had introduced a novel innovation, an incremental innovation, or no innovation with regard to each of the following categories: (i) products or services, (ii) production processes (including storage), (iii) work practices, or workforce organisation, (iv) supply and supplier relations, (v) markets and marketing, (vi) administration and office systems, and (vii) product or services distribution. A novel innovation was one that was new to the entrepreneur's business and also new to the industry, whilst an incremental innovation was new to the entrepreneur's business but not new to the industry. A total of 63.7% of the firms introduced either a novel or an incremental innovation from one or more of the seven types of innovation.

Empirical studies have supported the existence of a relationship between innovative behaviour of SMEs and their performance (Gunasekaran et al., 2000; Olomi, 1999). This notwithstanding, with regard to the association between innovation and barriers the case can be made for either a positive or a negative one. Innovating firms may by virtue of being state of the art encounter more problems and barriers; alternatively, by being pioneers and perhaps being more dynamic the firms could encounter fewer barriers.

3.3. Size

The mean and the median size of the businesses were 11.9 and 8 employees, respectively. The literature on the degree of association between the size and the performance of businesses, as well as survival, has produced mixed results from one country to another (Liedholm, 2002). For instance, McPherson (1996) found in three East African countries of Malawi, Swaziland, and Botswana that the size of the enterprise had no significant influence on the survival of the firm. However, a study undertaken in Britain by Cosh and Hughes (2003) reported a strong association between the size of the firm and the firm's constraints.

Larger sized firms have the wherewithal to overcome problems, which are encountered. They may have more assets and slack resources and stronger cash flows and a greater capacity in marketing and selling than smaller firms. On the other hand, the smaller the firm the faster and more able they are to recognise opportunities and address issues so that they do not become barriers and obstacles. Thus, as with innovation there are mixed expectations about the relationship that would be expected between the size of the business and the likelihood of businesses encountering barriers.

3.4. Growth

Owner-managers in the survey were asked to record the level of employment in their firm in 2005 and 3 years earlier. Employing this data and following Brouwer et al. (1993), an annualized rate of growth for employment was included in the model. The mean and median rates of employment growth were 6.4% and 5.7%, respectively, per annum over the period 2002–2005. Modelling growth at the firm level has been found to be notoriously difficult with many factors conjectured to have a bearing upon growth (Westhead and Birley, 1995). In the models employment growth was included to capture the dynamic changes taking place in the business. It is expected that those firms which are growing are more likely than other firms to encounter barriers to achieving the businesses' objectives.

3.5. Training

A total of 58.6% of the businesses provided training. The evidence on links between training and firms' performances are mixed. Some studies have failed to establish any strong link between training and improved performance (Storey and Westhead, 1997). Whilst other studies support the view that training could indeed improve the performance of the small firm (Cosh et al., 2000). It is against this background that this study has attempted to

determine whether there are any statistically significant relationships between training and barriers. As with innovation, firms investing in training could be more, or less, likely to encounter barriers and limitations. By investing in training the firms could avoid problems; alternatively, by not investing in training the firms could become more susceptible to barriers and limitations.

3.6. Sector

A total of 43.9% of the respondents were from the service sector, 38.9% were from the manufacturing sector and 18.2% were from the agriculture sector. In the allocation of credit by the deposit money banks (DMBs) the agriculture sector has consistently received the lowest share with an average of 11.5%, while the manufacturing and the services sectors received 24.7% and 58.8%, respectively, between January 1995 and December 2002 (ISSER, 2003). In analysing the barriers and limitations facing businesses it is expected that the agriculture sector will be the most constrained sector, followed by the manufacturing sector and then the services sector. This ordering is expected in part because of the relative weightings the sectors received in the allocation of credit, and also because the agriculture sector is being exposed to subsidised food products and dumping from the European Union, the US, and China.

3.7. Exporting

A total of 20.2% of the businesses were exporters of goods or services. Exporting goods and services involves exposure to markets outside of Ghana, to other African nations and beyond. Exporting firms require a set of skills and expertise with regard to both domestic and foreign markets. As such it would be expected that exporting firms were more likely than non-exporting firms to encounter barriers to achieving their objectives.

3.8. R&D

Research and development (R&D) expenditure is a measure of knowledge intensity and of the absorptive capacity of the firm (Hadjimanolis, 2000). A total of 20.0% of the businesses spent money on R&D. It is expected that those firms which engage in R&D activities encounter more barriers in achieving their objectives compared to businesses which do not perform R&D.

3.9. Age

The mean and median age of the firms was 11.4 and 9 years, respectively. Storey (1994) reviewed the small firm literature on the relationship between age and growth, and found that most previous research in the UK and the US showed that younger firms grow more rapidly than older firms. The mean and median age of the entrepreneurs was 43 and 44 years old, respectively. The debate as to whether the old entrepreneurs' firms grow faster than young entrepreneurs' firms has not been conclusive (Storey, 1994; Smallbone and Wyer, 2000).

The younger the entrepreneur the smaller their level of experience and the smaller their degree of credibility in the business world, but the higher their level of dedication and energy. It is expected that younger entrepreneurs are more likely to encounter barriers than older entrepreneurs. Storey (1994) suggests that there may also be the possibility of a non-linear relationship between age and growth, and that this can be tested by including both age and age squared in a model. Incorporating those variables in the models did not provide any evidence to support the existence of a non-linear relationship, and thus the results with age only are reported. Additionally, there was a high degree of multicolinearity between the age of the businesses and the age of the entrepreneurs. In the regression models the age of the entrepreneurs was included.

3.10. Sex

Male owned firms make up a greater proportion of self-employment in most countries (Brooksbank, 2000; Sowa et al., 1992). A total of 86.6% of the entrepreneurs were men and 13.4% were women in the survey. Mead and Liedholm (1998) found in east Africa that the gender of the owner-manager was a significant determinant of the survival rate of the business. A study

by Saffu and Manu (2004) reported that the Ghanaian female-owned firms were more likely to face financial constraints than their male counterparts. Another study undertaken in the US by Robb and Wolken (2002) found that female owned firms were considered to be a greater credit risk than the male-owned firms as measured by Dun and Bradstreet credit scores. Thus, we expect that female entrepreneurs will encounter more barriers than male entrepreneurs.

3.11. Education

A review of the literature on the relationship between the level of education of the entrepreneur and owner-manager and the performance of the business has established a generally positive relationship (Barringer et al. 2005; Bates, 1990; McCormick et al. 1997; Mead and Liedholm, 1998). For example, Barringer et al. (2005) found a strong statistical relationship between the rapid growth of business and college education; although no statistically significant relationship was found between growth and those with Masters or PhD qualifications. It would be generally expected that those entrepreneurs with high levels of education encountered fewer problems than those with lower levels of education.

The education of the entrepreneurs was categorised according to their highest qualification into one of four groups: (i) postgraduate, professional qualifications, degrees or GCE 'A' levels, where the later are the qualifications which determines entry to universities in Ghana and the UK, and are equivalent to high school graduation in the US; (ii) technical, vocational and apprenticeships; (iii) GCE 'O' level which corresponds to those with an education up to 16 years of age; and, (iv) junior school certificates, or no education.

3.12. Location

In the UK various studies have found that small businesses which were located in more 'accessible' rural areas performed better than their counterparts in the urban areas (Keeble, 2003). However, similar studies undertaken in some countries in East Africa on urban micro and small businesses revealed evidence to the contrary (Liedholm, 2002). Thus, the role of location of the business and its impact on the performance of businesses has divided researchers. In this paper the location of the businesses has been related to three classifications, conurbations (Accra, Tema and the surrounding area), large towns (settlements with populations of 150,000–1,500,000), and small towns (settlements with populations of less than 150,000). A total of 55.4% of the respondents were from conurbations, 21.6% from large towns, and 23.0% from small towns. There are virtually no businesses with five or more employees in the rural areas. The definition of the settlements was adapted from the work of Keeble (2003) which also examined the performance and growth of small businesses by location. The closeness between firms and their customers can provide impetus for development due to the ease with which the firms can identify customer needs. Thus, it is expected that those firms in conurbations encounter fewer barriers than other types of locations.

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The entrepreneurs indicated if each of the factors was not important, moderately important, important, or of crucial important. For ease of interpretation of the results it was felt desirable to combine together important and crucial for the summary statistics, although in the regression models the four categories were retained and estimated by ordered logit models. Tests for multicollinearity using correlation matrices, tolerance statistics and variance inflation factors suggest that this is not a problem in the models. Table I shows the list of barriers, which were encountered in trying to meet their business objectives over the last 3 years.

The high rate of inflation was the most perceived limitation and it was mentioned by 71.4% of the respondents. This was followed by too high interest rates which was mentioned by 68.5% of the respondents and the high rate of the depreciation of the Cedi occupied the third position with 63.5%.

TABLE I
Limitations encountered by entrepreneurs in achieving their business objectives over the last 3 years, (% reporting important, or crucial limitation)

Factor	%	Ranking
Finance		
Inadequate access to debt finance	41.8	18
Inadequate access to equity finance	20.0	36
Interest rates too high	68.5	2
Do not have collateral to secure bank loan	48.8	11
Difficult to meet loan criteria	50.3	9
Inadequate family finance	37.2	20
Market		
Inadequate demand	31.6	24
Too many competing firms	49.3	10
Competition from imported goods	28.5	28
High advertising costs	43.1	14
Inadequate market research	27.3	29
Managerial/Technical Know-how		
Shortage of skilled labour	34.0	23
High wages for skilled labour	48.3	12
Access to new technology	45.7	13
Inadequate financial skills	29.5	26
Inadequate management skills	26.3	30
Inadequate marketing skills	31.4	25
Inadequate technical skills	23.5	32
Inputs		
High cost of local raw materials	51.7	7
High cost of imported raw materials	42.5	17
Inadequate supply of raw materials	25.6	31
Outmoded equipment	38.1	19
High cost of replacing old equipment	52.3	6
Difficulty in finding appropriate equipment	29.4	27
Poor quality of local raw materials	23.2	33
Poor quality of imported raw materials	13.7	38
Economic/Regulatory		
High rate of inflation	71.4	1
High depreciation of the cedi	63.5	3
High tax and import duties	50.5	8
Registration/Licensing/Red tape	18.8	37
Corruption	20.3	35
Infrastructure		
High cost of utility charges	58.5	4
Lack of industrial sites	35.1	22
High transport costs	58.0	5
Low quality of electricity/water supply	35.7	21
Poor telecommunication networks	21.3	34
Socio-cultural		
Use of business resources to support family	42.8	16
N	489	
Others	42.9	15
N	49	

The following factors were mentioned by more than 50% of the respondents – the high utility charges, high transport cost, the high cost of replacing old equipment, high cost of local raw materials, high tax and import duties and difficult to meet loan criteria. These results seemed to reflect similar studies undertaken by Sowa et al. (1992), Wolf (2004), Buame (1996), and Trulsson (2002).

The poor quality of imported raw materials (13.7%), registration, licensing or red tape (18.8%), inadequate access to equity finance (20%) and corruption (20.3%) were the factors, which were least likely to be perceived as barriers.

4.1. Business characteristics – family

The results showed that family business was statistically significant in 19 of the models and was the factor which was most related to barriers and limitations (See Tables II–VII). More specifically family businesses were more likely than non-family businesses to encounter barriers to achieving their objectives. With regard to four out of the six financial factors, shown in Table II, family businesses were more constrained than non-family businesses. These results are consistent with Kets de Vries's research (1996), where it was found that raising long-term capital is more difficult for family businesses than non-family businesses.

In the models of inadequate demand, too many competing firms, and inadequate market research family businesses were more likely than non-family businesses to encounter barriers and limitations (Table III). Focusing on the managerial and technical limitations, all seven models showed that family businesses were more likely than non-family businesses to encounter these barriers (See Table IV). Organisation and technical issues are some of the problems associated with family business as observed by Kets de Vries (1996).

Family businesses were more likely than non-family businesses to encounter barriers related to outmoded equipment, the high cost of replacing old equipment, and the difficulty in finding appropriate equipment. With regard to the economic and regulatory limitations the

TABLE II
Estimates of an ordered logit model of the limitations encountered by entrepreneurs in achieving their business objectives over the last three years, by financial factors

	Inadequate access to debt finance	Inadequate access to equity finance	Interest rates too high	No collateral to secure bank loan	Difficult to meet loan criteria	Inadequate family finance
Growth	−0.006 (0.004)	−0.014 (0.005)[a]	0.004 (0.005)	0.013 (0.005)[a]	0.010 (0.005)[b]	−0.006 (0.004)
Manufacturing	−0.699 (0.235)[a]	−0.403 (0.288)	−0.343 (0.279)	−0.415 (0.267)	−0.361 (0.263)	−0.884 (0.253)[a]
Services	−0.812 (0.256)[a]	−0.247 (0.291)	−0.634 (0.281)[b]	−0.566 (0.271)[b]	−0.805 (0.267)[a]	−1.001 (0.258)[a]
Size (Log)	0.695 (0.260)[a]	−0.110 (0.279)	0.300 (0.273)	−0.773 (0.270)[a]	−0.308 (0.260)	0.014 (0.263)
Exporter	−0.300 (0.231)	0.298 (0.253)	0.140 (0.236)	−0.183 (0.234)	−0.122 (0.227)	−0.209 (0.236)
Innovator	−0.153 (0.208)	−0.368 (0.246)	−0.196 (0.217)	−0.265 (0.215)	−0.346 (0.209)[c]	−0.090 (0.211)
R&D	−0.362 (0.237)	0.194 (0.252)	−0.205 (0.234)	−0.283 (0.236)	−0.218 (0.229)	0.103 (0.231)
Training	0.017 (0.195)	0.326 (0.229)	0.403 (0.203)[b]	0.053 (0.206)	−0.002 (0.201)	0.555 (0.201)[a]
Family Business	0.407 (0.217)[c]	0.229 (0.246)	0.427 (0.213)[b]	0.989 (0.226)[a]	0.494 (0.217)[b]	0.144 (0.219)
Gender	−0.007 (0.280)	0.431 (0.356)	−0.107 (0.291)	0.045 (0.287)	0.151 (0.282)	−0.906 (0.287)[a]
Age	1.669 (0.881)[c]	−0.157 (0.994)	1.144 (0.908)	−1.490 (0.929)	−0.523 (0.897)	0.241 (0.887)
High school graduation plus	−0.264 (0.252)	0.079 (0.281)	−0.338 (0.251)	−0.598 (0.261)[b]	−0.671 (0.253)[a]	−0.763 (0.260)[a]
Technical/ Voc	−0.365(0.251)	−0.433 (0.297)	0.013 (0.269)	−0.106 (0.260)	−0.092 (0.256)	−0.365 (0.247)
'O' Levels	−0.188(0.277)	−0.141 (0.329)	−0.041 (0.290)	−0.291 (0.295)	−0.223 (0.285)	0.343 (0.277)
Conurbation	0.214 (0.232)	0.067 (0.270)	−0.160 (0.248)	0.689 (0.242)[a]	0.685 (0.238)[a]	−0.277 (0.229)
Large Town	0.211 (0.287)	0.063 (0.343)	0.096 (0.309)	0.572 (0.302)[b]	0.781 (0.297)[a]	−0.373 (0.282)
Log likelihood	−555.571	−416.820	−504.270	−494.975	−532.652	−543.054

N = 443.
[a]Significant at 1% level.
[b]Significant at 5% level.
[c]Significant at 10% level.
For sector the excluded comparison group is agriculture; for education the excluded comparison group is Junior School Certificate (plus no education, 13 observations); for location the excluded comparison group is small towns.

TABLE III
Estimates of an ordered logit model of the limitations encountered by entrepreneurs in achieving their business objectives over the last three years, by market related factors

	Inadequate demand	Too many competing firms	Competition from imported goods	High advertising costs	Inadequate market research
Growth	0.004 (0.004)	0.003 (0.004)	0.016 (0.005)[a]	0.008 (0.005) [c]	0.001 (0.005)
Manufacturing	−0.264 (0.256)	0.175 (0.251)	−1.152 (0.281)[a]	0.454 (0.264) [c]	−0.165 (0.257)
Services	−0.223 (0.260)	0.250 (0.255)	−1.543 (0.295)[a]	0.430 (0.268)	−0.287 (0.262)
Size (Log)	−0.791 (0.261)[a]	−0.334 (0.251)	−0.390 (0.287)	−0.322 (0.265)	0.181 (0.266)
Exporter	0.502 (0.230)[b]	−0.300 (0.220)	0.223 (0.255)	0.050 (0.230)	0.049 (0.233)
Innovator	−0.387 (0.202)[c]	0.299 (0.207)	0.319 (0.237)	−0.335 (0.211	−0.115 (0.215)
R&D	−0.286 (0.233)	−0.876 (0.226)[a]	−0.626 (0.271)[b]	0.177 (0.225)	−0.334 (0.234)
Training	0.212 (0.192)	−0.210 (0.191)	0.079 (0.222)	0.122 (0.195)	−0.141 (0.201)
Family Business	0.402 (0.212)[c]	0.393 (0.208)[c]	−0.446 (0.235)	0.217 (0.218)	0.698 (0.231)[a]
Gender	−0.376 (0.276)	0.379 (0.278)	0.106 (0.322)	−0.358 (0.267)	−0.005 (0.288)
Age	0.622 (0.879)	−1.857 (0.856)	−0.454 (0.992)[b]	−1.307 (0.895)	0.791 (0.905)
High school graduation plus	−0.053 (0.245)	−0.564 (0.247)[b]	0.394 (0.281)[c]	−0.259 (0.251)	−0.011 (0.261)
Technical/Voc	0.053 (0.241)	−0.409 (0.248)[c]	0.476 (0.284)[c]	0.428 (0.247)[c]	0.536 (0.255)[b]
'O' Levels	−0.373 (0.280)	−0.473 (0.263)[c]	0.374 (0.307)	−0.063 (0.274)	−0.003 (0.288)
Conurbation	0.311 (0.224)	0.584 (0.229)[b]	1.300 (0.301)[a]	−0.762 (0.233)[a]	−0.382 (0.241)
Large Town	−0.264 (0.278)	0.632 (0.279)[b]	0.982 (0.355)[a]	−0.799 (0.283)[a]	−0.241 (0.295)
Log likelihood	−562.410	−589.608	−442.846	−552.237	−505.434

N = 443.
[a]Significant at 1% level.
[b]Significant at 5% level.
[c]Significant at 10% level.

results showed no statistically significant relationship with family businesses. In examining the infrastructure factors and socio-cultural factors against family and non-family businesses shown in Table VII, the data revealed that high transport costs and the use of business resources to support family were the only statistically significant results. The results are consistent with previous researchers who have established links between the African extended family system and the performance of small business (Buame, 1996; Mambula, 2002).

4.2. Innovation

In the models of managerial and technical barriers shown in Table IV innovation appeared with negatively signed coefficients and was statistically significant at the 5% level or better for all of the factors with the exception of access to new technology and inadequate financial skills, which were not statistically significant. In other words, non-innovators were more likely than innovators to encounter managerial and technical barriers. Perhaps it was the case that the innovators had in place a more skilled set of employees and entrepreneurs who had a better set and quality of business skills.

Innovators were more likely than non-innovators to encounter the barrier, the high cost of utility charges, and the low quality of electricity and water supply, which were both infrastructure barriers shown in Table VII; and more likely to encounter registration/licensing and red tape.

4.3. Size

The results show that there are mixed relationships between firm size and the likelihood of encountering barriers. Larger firms were more likely to encounter inadequate access to debt finance but less likely to have no collateral to secure bank loans.

Smaller sized firms were also more likely than larger sized firms to encounter inadequate demand (See Table III) the high cost of local raw materials (See Table V) the high cost of utility charges, high transport costs and the use

TABLE IV
Estimates of an ordered logit model of the limitations encountered by entrepreneurs in achieving their business objectives over the last three years, by managerial and technical factors

	Shortage of skilled labour	High wages for skilled labour	Access to new technology	Inadequate financial skills	Inadequate management skills	Inadequate marketing skills	Inadequate technical skills
Growth	0.007 (0.004)	0.011 (0.004)[a]	0.006 (0.004)	0.005 (0.004)	−0.001 (0.005)	0.003 (0.004)	0.002 (0.005)
Manufacturing	−0.378 (0.259)	0.380 (0.255)	0.533 (0.248)[b]	0.001 (0.261)	−0.135 (0.259)	0.121 (0.261)	−0.471 (0.260)[c]
Services	−0.041 (0.260)	0.295 (0.259)	−0.164 (0.254)	−0.079 (0.264)	−0.418 (0.266)	−0.143 (0.264)	−0.810 (0.268)[a]
Size (Log)	0.238 (0.266)	0.151 (0.257)	0.182 (0.251)	−0.110 (0.267)	0.086 (0.269)	−0.024 (0.262)	0.159 (0.271)
Exporter	−0.095 (0.242	0.154 (0.227)	0.144 (0.224)	−0.109 (0.214)	0.142 (0.238)	0.384 (0.234)	0.210 (0.244)
Innovator	−0.614 (0.212)[a]	−0.570 (0.203)[a]	−0.024 (0.207)	−0.261 (0.214)	−0.588 (0.209)[a]	−0.580 (0.210)[a]	−0.401 (0.216)[b]
R&D	−0.271 (0.240)	−0.576 (0.226)[a]	−0.646 (0.227)[a]	−0.548 (0.247)[b]	−0.513 (0.239)[b]	−0.705 (0.239)[a]	−0.701 (0.255)[a]
Training	0.312 (0.202)	0.055 (0.192)	0.181 (0.194)	0.089 (0.200)	0.300 (0.201)	0.279 (0.198)	0.029 (0.205)
Family Business	0.600 (0.225)[a]	0.907 (0.210)[a]	0.469 (0.219)[b]	0.749 (0.230)[a]	0.884 (0.230)[a]	0.944 (0.227)[a]	0.816 (0.240)[a]
Gender	−0.344 (0.275)	−0.131 (0.277)	0.452 (0.283)	0.247 (0.303)	−0.206 (0.293)	0.160 (0.303)	0.093 (0.317)
Age	1.321 (0.926)	0.176 (0.875)	0.810 (0.880)	−0.461 (0.933)	0.182 (0.911)	0.889 (0.897)	−0.701 (0.959)
High school graduation plus	−0.035 (0.258)	−0.436 (0.242)[c]	−0.447 (0.251)[c]	−0.010 (.0257)	0.145 (0.259)	−0.023 (0.253)	0.228 (0.271)
Technical/Voc	0.472 (0.255)[c]	0.109 (0.243)	−0.116 (0.246)	0.369 (0.259)	0.335 (0.252)	0.010 (0.254)	0.410 (0.263)
'O' Levels	0.377 (0.281)	−0.204 (0.274)	0.034 (0.279)	0.170 (0.283)	−0.041 (0.284)	−0.330 (0.285)	0.288 (0.296)
Conurbation	−0.813 (0.238)[a]	−0.342 (0.234)	−0.349 (0.233)	−0.683 (0.245)[a]	−0.933 (0.241)[a]	−0.769 (0.244)[a]	−0.761 (0.250)[a]
Large Town	−0.253 (0.288)	−0.137 (0.288)	0.269 (0.288)	−0.542 (0.300)[c]	−0.513 (0.291)[c]	−0.700 (0.296)[b]	−0.054 (0.301)
Log likelihood	−520.049	−575.667	−562.883	−509.817	−505.804	−520.562	−475.062

N = 443.
[a]Significant at 1% level.
[b]Significant at 5% level.
[c]Significant at 10% level.

TABLE V

Estimates of an ordered logit model of the limitations encountered by entrepreneurs in achieving their business objectives over the last three years, by inputs related factors

	High cost of local raw materials	High cost of imported raw materials	Inadequate supply of raw materials	Outmoded equipment	High cost of replacing old equipment	Difficulty in finding appropriate equipment	Poor quality of local raw materials	Poor quality of imported raw materials
Growth	0.015 (0.005)[a]	0.013 (0.005)[a]	0.003 (0.005)	0.003 (0.005)	0.003 (0.004)	0.012 (0.005)[b]	0.009 (0.005)[c]	0.008 (0.005)
Manufacturing	−0.380 (0.260)	−0.254 (0.265)	0.220 (0.258)	0.483 (0.258)[c]	0.646 (0.259)[b]	0.544 (0.273)[b]	−0.364 (0.266)	−0.023 (0.313)
Services	−1.397 (0.269)[a]	−0.735 (0.271)[a]	−0.916 (0.273)[a]	−0.116 (0.267)	0.118 (0.262)	0.116 (0.277)	−1.195 (0.284)[a]	−0.260 (0.326)
Size (Log)	−0.560 (0.266)[b]	−0.335 (0.269)	−0.070 (0.268)	0.566 (0.261)[b]	0.441 (0.258)[c]	0.226 (0.277)	0.200 (0.290)	0.222 (0.330)
Exporter	−0.021 (0.229)	0.518 (0.225)[b]	0.444 (0.234)[c]	0.038 (0.228)	0.130 (0.223)	−0.184 (0.239)	−0.400 (0.264)	0.528 (0.271)[c]
Innovator	0.519 (0.212)	0.495 (0.214)[b]	0.296 (0.216)	−0.024 (0.210)	0.039 (0.208)	−0.335 (0.217)	−0.045 (0.224)	−0.067 (0.260)
R&D	−0.360 (0.235)	−0.421 (0.234)[c]	−1.025 (0.261)[a]	−0.443 (0.231)[c]	−0.140 (0.225)	−0.526 (0.252)[b]	−0.700 (0.268)[a]	−0.366 (0.301)
Training	0.343 (0.202)[c]	0.551 (0.202)[a]	0.001 (0.205)	0.230 (0.201)	0.414 (0.195)[b]	0.038 (0.207)	−0.101 (0.215)	0.136 (0.247)
Family Business	0.344 (0.215)	−0.168 (0.217)	0.040 (0.228)	0.687 (0.225)[a]	0.538 (0.211)[b]	0.618 (0.232)[a]	0.189 (0.243)	0.066 (0.274)
Gender	0.177 (0.285)	0.016 (0.293)	0.048 (0.300)	0.404 (0.300)	0.626 (0.291)[b]	0.538 (0.318)[c]	0.205 (0.318)	0.256 (0.383)
Age	−1.2370.890)	−1.796 (0.897)[b]	0.515 (0.929)	−0.295 (0.889)	−0.096 (0.869)	0.664 (0.935)	−1.964 (0.970)[b]	−1.679 (1.110)
High school graduation plus	−0.644 (0.253)[b]	−0.043 (0.257)	−0.145 (0.262)	−0.708 (0.262)[a]	−0.625 (0.248)[b]	−0.459 (0.270)[c]	−0.204 (0.279)	−0.625 (0.313)[b]
Technical/ Voc.	−0.280 (0.254)	−0.043 (0.256)	0.135 (0.260)	0.214 (0.249)	0.173 (0.249)	0.358 (0.257)	0.169 (0.268)	−0.366 (0.316)
'O' Levels	−0.553 (0.278)[b]	−0.328 (0.286)	−0.245 (0.291)	0.251 (0.276)	0.000 (0.275)	0.044 (0.288)	−0.282 (0.298)	−0.723 (0.348)[b]
Conurbation	−0.516 (0.238)[b]	0.613 (0.243)[b]	−0.245 (0.239)	−0.365 (0.236)	0.059 (0.232)	−0.332 (0.245)	−0.185 (0.282)	0.621 (0.300)[b]
Large Town	−0.792 (0.292)[a]	−0.047 (0.304)	−0.266 (0.304)	0.121 (0.288)	0.363 (0.290)	−0.411 (0.308)	−0.658 (0.320)[b]	0.016 (0.393)
Log likelihood	−541.971	−527.644	−493.314	−537.578	−550.094	−497.946	−452.235	−347.714

N = 443.

[a]Significant at 1% level.

[b]Significant at 5% level.

[c]Significant at 10% level.

TABLE VI
Estimates of an ordered logit model of the limitations encountered by entrepreneurs in achieving their business objectives over the last three years, by economic/regulatory factors

	High rate of inflation	High depreciation of the cedi	High tax and import duties	Registration/ Licensing/Red tape	Corruption
Growth	0.004 (0.005)	0.006 (0.004)	0.004 (0.004)	0.107 (0.004)[b]	0.006 (0.005)
Manufacturing	−0.357 (0.252)	−0.044 (0.246)	0.795 (0.251)[a]	0.113 (0.262)	−0.455 (0.252)[c]
Services	−0.507 (0.256)[b]	−0.109 (0.252)	0.776 (0.257)[a]	0.260 (0.266)	−0.582 (0.261)
Size (Log)	−0.294 (0.252)	0.126 (0.250)	−0.006 (0.255)	−0.121 (0.269)	−0.018 (0.266)
Exporter	−0.030 (0.226)	−0.171 (0.219)	0.333 (0.229)	−0.151 (0.238)	−0.205 (0.236)
Innovator	−0.100 (0.206)	0.070 (0.202)	0.284 (0.204)	0.450 (0.213)[b]	0.174 (0.213)
R&D	−0.014 (0.225)	−0.304 (0.225)	−0.190 (0.222)	0.132 (0.234)	−0.290 (0.239)
Training	0.270 (0.194)	0.041 (0.190)	0.338 (0.195)[c]	0.449 (0.203)[b]	0.201 (0.201)
Family Business	0.067 (0.214)	0.109 (0.211)	−0.087 (0.212)	0.548 (0.234)	0.579 (0.228)
Gender	−0.396 (0.282)	−0.020 (0.279)	0.033 (0.283)	−0.066 (0.294)	−0.145 (0.285)
Age	−0.809 (0.878)	−1.628 (0.857)[c]	0.008 (0.852)	0.138 (0.915)	0.387 (0.914)
High school graduation plus	−0.179 (0.250)	−0.078 (0.247)	0.211 (0.248)	0.570 (0.260)[b]	0.105 (0.258)
Technical/Voc.	−0.074 (0.250)	0.179 (0.250)	0.002 (0.246)	0.164 (0.260)	−0.056 (0.258)
'O' Levels	−0.184 (0.268)	0.106 (0.263)	−0.040 (0.266)	0.259 (0.276)	0.187 (0.281)
Conurbation	0.082 (0.226)	0.278 (0.224)	1.023 (0.231)[a]	0.504 (0.241)[b]	0.494 (0.235)[b]
Large Town	−0.514 (0.281)[c]	−0.441 (0.277)	0.370 (0.276)	0.069 (0.295)	−0.178 (0.296)
Log likelihood	−551.212	−584.703	−572.444	−493.285	−503 .173

N = 443.
[a]Significant at 1% level.
[b]Significant at 5% level.
[c]Significant at 10% level.

of business resources to support family (See Table VII). These results support the earlier finding of Mead and Liedholm (1998) who reported that micro firms experienced higher closure rates than the small and medium firms due to a lack of demand and the shortage of working capital.

There was a positive relationship between the size of the business and business barriers for: outmoded equipment, and the high cost of replacing old equipment. Thus, the larger firms were more likely than younger firms to be burdened with outmoded equipment and difficulties in finding the money to replace the equipment. The younger firms would have equipment which had a higher probability of being of a newer vintage, and a more up-to-date specification than older firms.

4.4. Growth

The models show in general that growth is positively related to the likelihood of businesses encountering barriers and limitations. Inputs related factors which are shown in Table V were the models which showed the strongest relationship with growth. More specifically the greater the level of growth the more likely that businesses encounter barriers with regard to: the high cost of local raw materials, the high cost of imported raw materials, the difficulty in finding appropriate equipment, and the poor quality of local raw materials. Bartlett and Bukvic (2001) also asserted that fast growth businesses experienced the worst problems when compared with businesses with lower rates of growth.

In addition faster growth businesses were more likely to have no collateral to secure bank loans, and the difficulty to meet loan criteria; and, the less likely to have inadequate access to equity finance. These results can be explained by the faster the growth of the business the more difficult it is for the entrepreneur to meet loan requirements due to the commercial lenders perceiving the business proposals from the entrepreneur as risky, and demanding adequate collateral which entrepreneurs would have difficulty fulfilling.

In Ghana it is extremely difficult for the small business owner-manager to secure equity loans from the stock market, but clearly growing firms represent an attractive set of prospects for those willing to make equity loans. In the UK, Barkham et al. (1996) and Jarvis (2000) noted that external equity is available to a small number of small businesses which had shown substantial growth.

Growing firms were also more likely to have difficulties with registration, licensing and red tape and this is shown in Table VI. This result supports other studies which have found strong associations between institutional bureaucracy and the growth of small businesses in developing countries (Bartlett and Bukvic, 2001; Buame, 1996; Mead and Liedholm, 1998).

The faster the rate of growth the more likely that a firm would encounter infrastructure barriers which are shown in Table VII and this was statistically significant for, the high cost of utility charges, lack of industrial sites, and high transport costs. Poor infrastructure in Africa has been described by ECA (2004) as the bane of the continent's industrial development. According to ECA (2004: 122) 'the low competitiveness of African products in the global markets can be attributed in part to the continent's inadequate infrastructure development'. In Ghana the story is not different from other African countries, although in recent years the infrastructure has improved markedly compared to the 1980s and the 1990s (ECA, 2004).

Growing firms were more likely to have the problem of the use of business resources to support families. This finding is consistent with the previous research of Buame (1996), Takyi-Asiedu (1993), and Kiggundu (2002) although none of these studies utilised regression techniques. The communal nature of African society and the nature of inheritance of some tribes mean that if a person becomes successful in the family he has the social obligation to cater for the other siblings who are not successful in life. Buame (1996: 197) noted that '[n]o Ghanaian can easily do away with his or her relatives. Our traditional life is centred on kinship, I mean our relatives'.

4.5. Training

The results show that firms which engaged in training were more likely than the firms that did not undertake training to encounter barriers and limitations. With regard to the financial limitations which are shown in Table II the results show that firms pursuing training were more likely than other firms to find that there was inadequate family finance, and that interest rates were too high.

Interestingly training activity showed no statistically significant relationships with the managerial and technical factors. This could be explained by most of the firms which undertook training focussing resources upon those workers who worked on the shop floor, rather than people in managerial positions.

Analysis of the inputs factors which are shown in Table V indicated that the high costs of local raw materials, the high cost of imported raw materials, and the high cost of replacing old equipment were all limitations which were more likely to be found in firms investing in training compared to those businesses not investing in training.

4.6. Sector

The agricultural sector was the excluded comparison category in the models. Service sector firms were less likely than agricultural firms to encounter financial and also inputs barriers and limitations. Indeed five financial limitations were statistically significant at the 5% level or better: inadequate access to debt finance, interest rates too high, no collateral to secure bank loans, the difficulty to meet loan criteria, and inadequate family finance. In four inputs models sector was statistically significant at the 1% level and they were: the high cost of local raw materials, the high cost of imported raw materials, inadequate supply of raw materials, and the poor quality of local raw materials.

In contrast, service sector firms were much more likely than agricultural businesses to have infrastructure barriers; and in four models there were statistically significant relationships: the high cost of utility charges, a lack of industrial sites, the low quality of electricity and water

TABLE VII
Estimates of an ordered logit model of the limitations encountered by entrepreneurs in achieving their business objectives over the last three years, by infrastructure and socio-cultural factors

	High cost of utility charges	Lack of industrial sites	High transport costs	Low quality of electricity/water supply	Poor telecommunication networks	Use of business resources to support family
Growth	0.014 (0.004)[a]	0.010 (0.005)[b]	0.008 (0.004)[c]	0.005 (0.004)	−0.005 (0.005)	0.015 (0.005)[a]
Manufacturing	0.773 (0.254)[a]	1.100 (0.282)[a]	−0.409 (0.243)	1.093 (0.261)[a]	0.390 (0.270)	−0.412 (0.256)
Services	0.726 (0.258)[a]	0.661 (0.287)[b]	−0.387 (0.250)	0.802 (0.263)[a]	0.576 (0.275)[b]	−0.617 (0.260)[b]
Size (Log)	−0.828 (0.258)[a]	−0.354 (0.270)	−0.523 (0.256)[b]	−0.081 (0.257)	0.020 (0.264)	−0.979 (0.266)[a]
Exporter	−0.247 (0.218)	−0.009 (0.230)	0.198 (0.222)	−0.288 (0.221)	−0.010 (0.231)	0.010 (0.231)
Innovator	0.539 (0.203)[a]	0.286 (0.212)	0.225 (0.201)	0.562 (0.208)[a]	−0.014 (0.211)	−0.249 (0.211)
R&D	0.040 (0.226)	-0.417 (0.240)[c]	0.152 (0.226)	0.398 (0.225)[c]	0.300 (0.228)	−0.239 (0.233)
Training	0.278 (0.189)	0.230 (0.200)	0.094 (0.191)	0.510 (0.193)[a]	0.396 (0.201)[b]	0.513 (0.197)[a]
Family Business	−0.046 (0.211)	0.405 (0.219)	0.373 (0.209)[c]	0.449 (0.219)	0.575 (0.226)	0.036 (0.214)[b]
Gender	−0.104 (0.285)	0.533 (0.260)	−0.224 (0.277)	−0.594 (0.273)[b]	−0.275 (0.286)	−0.110 (0.273)
Age	1.681 (0.877)[c]	0.053 (0.902)	−1.100 (0.872)	1.061 (0.857)	1.655 (0.892)[c]	−1.968 (0.886)[b]
High school graduation plus	0.154 (0.246)	-0.682 (0.260)[a]	−0.356 (0.243)	−0.010 (0.249)	0.588 (0.261)[b]	−0.193 (0.254)
Technical/ Voc.	−0.044 (0.245)	−0.210 (0.251)	0.287 (0.247)	−0.128 (0.250)	0.274 (0.261)	−0.193 (0.247)
'O' Levels	−0.256 (0.269)	−0.581 (0.288)[b]	−0.051 (0.272)	−0.418 (0.276)	0.455 (0.281)	−0.450 (0.281)
Conurbation	0.427 (0.226)[c]	0.656 (0.245)[a]	0.229 (0.226)	0.401 (0.231)[c]	−0.240 (0.240)	−1.165 (0.229)[a]
Large Town	0.053 (0.279)	0.315 (0.302)	−0.228 (0.276)	0.119 (0.287)	−0.818 (0.298)[a]	−0.053 (0.272)
Log likelihood	−580.279	−529.233	−581.532	−562.046	−508.268	−546.273

N = 443.
[a]Significant at 1% level.
[b]Significant at 5% level.
[c]Significant at 10% level.

supply, and poor telecommunication networks. Service sector businesses were also more likely than agricultural businesses to have high tax and import duties, and this is explained by the service sector businesses more likely to have goods for sale which were imported.

Analysis of the manufacturing variables showed that they were less likely than agricultural firms to encounter barriers but that the relationships were not systematically significant. Thus in Ghana it appears that the main differences in the barriers which firms encounter are in the services sector and not in the manufacturing sector, compared to the agricultural sector.

4.7. Exporting

Exporting activity was only statistically significant in four of the models, one relating to market factors which is shown in Table III, inadequate demand; and three models which were of input factors – the high cost of imported raw materials, inadequate supply of raw materials, and the poor quality of imported raw materials. Thus, the model results are not consistent with the hypothesis in 3.7.

4.8. R&D

The results show that in general those firms which undertook R&D were less likely to encounter barriers than those who did not spend money on R&D, and in particular were less likely to encounter most of the managerial and technical and inputs factors. The market related models where R&D was statistically significant were too many competing firms and competition from imported goods.

4.9. Entrepreneur characteristics – age

There were very few instances where the age of the entrepreneurs was statistically significant and related to the barriers. Older entrepreneurs were more likely to encounter the barriers inadequate access to debt finance, the high cost of utility charges, and poor telecommunication networks; younger entrepreneurs were more likely to encounter competition from imported goods, the high cost of imported raw materials, poor quality of local raw materials, and the high depreciation of the cedi. Some studies have attributed the difference in the effect of the limitations as a lack of experience on the part of the young aged entrepreneurs and owner-managers (Barringer et al., 2005; Brooksbank, 2000).

4.10. Sex

Men were more likely than women to encounter the barrier of high cost of replacing old equipment, and the difficulty in finding appropriate equipment; and women were more likely than men to encounter inadequate family finance, and the low quality of electricity or water supply. The results support Storey's (1994) assertion that the gender of the owner-manager or an entrepreneur is not a key influence upon the subsequent business performance. In other words, women generally do not encounter more or less barriers than men in business, once they are in business; but only 13.4% of the respondents were women compared to 86.6% of men, which suggests that women encounter barriers which prevent them from becoming owner-managers.

4.11. Education

In the models the excluded comparison group was junior school certificates. There were very few relationships between secondary school certificates, or technical and vocational qualifications compared to junior school levels of education and the business barriers; only four models showed negatively signed statistically significant relationships. In contrast those entrepreneurs with levels of education associated with A levels or higher, correspond to graduating from high school in the US, were much less likely to encounter barriers and limitations than those entrepreneurs who only had junior school certificates. This was particularly the case for financial and also inputs factors.

Entrepreneurs with A levels or higher educations were less likely than those entrepreneurs with junior school certificates to encounter the financial barriers of, no collateral to secure bank loans, the difficulty to meet loan criteria, and inadequate family finance. A similar pattern emerged for the following input related barriers:

the high cost of local raw materials, outmoded equipment, the high cost of replacing old equipment, the difficulty in finding appropriate equipment and the poor quality of imported raw materials.

The model results confirm the analysis of the crosstabulations of education against the business barriers and that those entrepreneurs who have stayed on and achieved a formal level of education associated with an 18 year old, or higher, are much less likely to encounter business problems than those with less formal education and qualifications.

4.12. Location

The results show that location plays an important part in explaining the likelihood of firms encountering barriers, and the types of barriers, which are encountered. Firms in conurbations and large towns were more likely than firms in small towns to encounter no collateral to secure bank loans, the difficulty to meet loan criteria, too many competing firms, and competition from imported goods; and were less likely to encounter high advertising costs. These results confirmed Sowa et al.'s (1992) study in Ghana which found a strong association between the location of the business and increases in sales levels. According to Sowa et al. (1992) 60% of the respondents located in Accra and Kumasi reported that their sales had not increased during the Economic Recovery Programme (ERP) period. However, a study undertaken in the Dominican Republic and five countries in Eastern and Southern African countries (Botswana, Kenya, Malawi, Swaziland and Zimbabwe) revealed different results (Mead and Liedholm, 1998). More specifically, the Mead and Liedholm (1998) study reported that location played an important role in determining the chances of survival of micro and small businesses, and that the businesses located in urban areas had a 25% greater chance of survival than the businesses in the rural areas.

Analysis of the models of the managerial and technical constraints showed that businesses in conurbations, compared to those in small towns were less likely to encounter barriers. A lack of external support services in the small towns may explain these results. This explanation is also supported by Barringer et al.'s (2005) work where they noted that businesses located in regions that facilitate the absorption of external knowledge were more likely to grow faster than their counterparts in other regions.

Firms in conurbations were more likely to have problems with the high cost of imported raw materials, and the poor quality of imported raw materials, but were also less likely to have difficulty with the high cost of local raw materials. Whilst firms in large towns were less likely than those in small towns to have problems with the high cost of local raw materials, and the poor quality of local raw materials. These results reflected the differing uses of imported materials within the regions.

The economic and regulatory models showed that those businesses located in conurbations were more likely than small towns to encounter barriers and this was statistically significant at the 5% level or better for the high tax and import duties, registration, licensing and red tape, and also corruption. Thus, the firms in the conurbations with their closer proximity to national and local government were more likely to encounter the stereotypical problems which are associated with Africa.

Similarly, firms in conurbations were more likely than those in small towns to have difficulty with the high cost of utility charges, a lack of industrial sites, and the low quality of electricity and water supply. Thus, firms in conurbations may benefit from the closer presence of a larger customer base but the high number of firms and the higher population result in problems and pressures associated with overcrowding – an infrastructure which is struggling to cope and may possibly in the future hinder the scope for development and growth.

5. C

This paper has examined the problems which are encountered by firms in meeting their business objectives, and has found that the three greatest problems were the high rate of inflation (71.4%), interest rates being too high (68.5%), and the high depreciation rate of the Cedi (63.5%), where the figures in parentheses are the

percentage of respondents who indicated that this was an important or a crucial problem. The study found that businesses which employed family members were more likely to face more problems than the non-family businesses. This particularly applied to financially related problems. These results are consistent with previous research in Africa which has shown the importance of the extended family, although in the case of Ghana there is a lack of empirical research by previous researchers.

The findings of the research also revealed that in general firms in conurbations were more likely to encounter barriers. The firms in conurbations show that the infrastructure in Ghana needs to be improved if future growth and development are not to be jeopardised. Size of the business and sector were both found to be strongly related to the likelihood of firms encountering barriers, but the nature of the relationships were mixed. The results also generally showed that growing businesses were more likely than other businesses to encounter barriers.

The study found that whether or not a business was an exporter business was not related to the encountering of business problems. However, in the case of innovation the results showed that non-innovators were more likely than innovators to encounter managerial and technical barriers. But, innovators were more likely than non-innovators to encounter the barrier, the high cost of utility charges, and the low quality of electricity and water supply, which were both infrastructure barriers.

When we look at the characteristics of the entrepreneurs it was found that sex and age were generally not related to barriers in business. Instead it was education which was more important as a set of explanatory variables. Indeed it was those entrepreneurs who had the equivalent of US high school graduation, or higher, were less likely to encounter barriers.

The results serve to highlight to policy makers in Ghana the profiles of the types of firms and entrepreneurs who are, and are not likely to encounter barriers. Some of the factors have been the results of present and previous governments' macroeconomic policies. Whilst these policies by controlling inflation and providing exchange rate stability will create the right conditions for an entrepreneurial economy in Ghana they have clearly had a short term adverse impact on business.

The findings do allow government to look at those factors where they can make a difference – improving the infrastructural framework in Ghana – particularly improving the quality of electricity and the water supply, the telecommunications network, and providing more industrial sites for business development. Interestingly, corruption and registration, licensing and red tape were amongst the least mentioned barriers, although firms in conurbations were more likely than firms in small towns to have these problems and suggests that there is still a need for the government to re-new effort to purge and eliminate corruption and minimise licensing and red tape.

R

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