

Export Propensities and Intensities of Small and Medium Manufacturing Enterprises in South Africa

V. Gumede

ABSTRACT. The basic premise of this study is that enterprise linkages, export marketing, and sunk costs significantly affect the propensities to export and intensities of exporting of small and medium manufacturing enterprises in South Africa. The hypothesis tested was that small and medium manufacturing enterprises break through into foreign markets with relative ease when involved in linkages because they facilitate information flows, thereby easing the international marketing burden on the shoulders of individual enterprise units. A theoretical perspective adopted by this study was that small- and medium-sized enterprises involved in enterprise linkages that have intermediaries are in a better position to enter and exit international markets. Empirical testing using survey data confirms this. This study, therefore, recommends that export promotion initiatives should take these factors into account. There are many possibilities discussed in this study. The important point is that there is now clarity about the main hindrances to probabilities of exporting and export intensities of small and medium manufacturing enterprises in South Africa. By implication, export market intelligence should be prioritized.

1. Introduction

To start with, 1 out of 5 units produced comes from the manufacturing sector in South Africa. Similarly, more than 20% of exports are manufactured exports. It is also estimated that 1 out of 4 economically active persons is in the manufacturing sector in South Africa. From the international trade perspective, it is estimated that at least 80% of global export trade is composed of manufactured products.

Juxtaposing these figures within the context of the small and medium enterprise sector reveals

that most of the manufacturing activities are by small and medium enterprises. To be precise, at least 90% of the manufacturing sector is small and medium, in terms of enterprise size in South Africa. These small enterprises contribute about half of the employment, half of the gross domestic product and 1 out of 5 units exported is produced in the small and medium sector in South Africa.¹ Notwithstanding the recent decline of the manufacturing sector's contribution to most economic variables, the fundamental role of the manufacturing sector remains uncontested.

This paper focuses on the export propensities and intensities² of small and medium manufacturing enterprises in South Africa. There are many recent studies that assess factors affecting exports of an enterprise. The proliferation of studies on factors affecting exports and relationships between exports and a variety of factors has been precipitated by the results of earlier studies, theoretical and empirical, which implied that exports mitigate the problems of many economies. At the enterprise level, many studies find that exporting enterprises perform better than non-exporting enterprises (see for instance, Bernard and Jensen, 1999).³

2. An empirical model of export participation

Pioneered by Balwin et al. (1989), Dixit (1989) and Krugman (1989), the importance of start-up costs has gained prominence in recent analytical literature (e.g. Roberts et al., 1997; Clerides et al., 1998; Bernard et al., 1999; Das et al., 2000; Tybout, 2000). The so-called export hysteresis framework postulates that enterprises are faced, over and above other factors, by sunk costs (including costs of packaging, upgrading of product quality, establishing export market

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P.O. Box 1083
1685, Halfway House
South Africa
E-mail: vusi.gumede@po.gov.za
vusi@economicpolicies.net



channels and accumulating information on demand sources). In effect, export market participation will be largely influenced by these factors.

In short, there are four key assumptions made in these models: the foreign and domestic markets for each enterprise's product are monopolistically competitive; producers are heterogeneous in terms of their marginal production costs and the foreign demand schedules they face for their products; plants are risk neutral and maximize the expected discounted sum of real profits and marginal costs do not respond to output shocks. Besides the simplification of empirical work these assumptions have been proven to be concrete in empirical tests by other researchers (i.e., Roberts et al., 1995).

The model begins with static optimization and proceeds to dynamic optimization as proposed by Dixit (1989). The operating profit function associated with demand and cost functions of the enterprise are derived, taking into account macro variables, denoted by (m_t) , and an enterprise specific stochastic intercept (x_{it}^1) :

$$q_{it} = -\eta_i p_{it} - \Psi_i m_t + x_{it}^1 \quad (1)$$

Where q_{it} is the log of the i th enterprise's exports in year t , $\eta_i > 1$ is the elasticity of foreign demand that the enterprise faces, p_{it} is the log of the enterprise's real price of exports in domestic currency, and the random variable x_{it}^1 captures factors that shift the enterprise-specific demand curve.

Equation 2 specifies the logarithm of marginal costs. x_{it}^2 is a random variable that evolves over time. Macroeconomic variables also appear in the marginal cost equation because they affect imported input prices and real wages.

$$c_{it} = \Psi_2 m_t + \frac{x_{it}^2}{1 - \eta_i} \quad (2)$$

The static profit maximization condition below yields optimal q_{it} choice among exporting enterprises. This is informed by the assumption that enterprises facing entry costs when initiating foreign sales can change the volume of their exports without incurring adjustment costs thereafter.

$$q_{it} = \eta_i \log \left(1 - \frac{1}{\eta_i} \right) + x_{it}^1 - \left(\frac{\eta_i}{1} - 1 \right) x_{it}^2 + (\Psi_1 - \eta_i \Psi_2) m_t \quad (3)$$

Given Equations 1 to 3, the log of current export revenue (R) and the log of current operating export profits (n) are linear in $x_{it} = (x_{it}^1, x_{it}^2)$ and m_t :

$$\ln[R(x_{it}, m_t)] = n_{0i} + \ln(\eta_i) + \{\Psi_1 + (1 - \eta_i)\Psi_2\}m_t + x_{it}^1 + x_{it}^2 \quad (4)$$

$$\ln[n(x_{it}, m_t)] = n_{0i} + \{\Psi_1 + (1 - \eta_i)\Psi_2\}m_t + x_{it}^1 + x_{it}^2 \quad (5)$$

$$\text{Where } \eta_{0i} = \left[\left(\eta_i - \frac{1}{\eta_i} \right) - \ln \left(\eta_i - \frac{1}{\eta_i} \right) \right].$$

In a dynamic optimization framework, the fact that enterprises incur fixed costs, $\Gamma_F + \varepsilon_{1it}$, each period they maintain a presence in export markets is taken into account. Also, if the i th enterprise did not export in period $t - 1$ it must pay some additional start-up costs, $\Gamma_S + \varepsilon_{1it} - \varepsilon_{2it}$, in order to establish distribution channels, learn bureaucratic procedures, and adapt its products and packaging for foreign markets. ε denotes errors, which can be transitory optimization errors when choosing q , or could be variations in fixed and sunk costs.

$$u(\cdot) = \begin{cases} n_i(x_{it}^1, x_{it}^2, m_t) - \Gamma_F + \varepsilon_{1it} & \text{if } y_{it} = 1 \text{ and } y_{it-1} = 1 \\ n_i(x_{it}^1, x_{it}^2, m_t) - \Gamma_F + \Gamma_S + \varepsilon_{2it} & \text{if } y_{it} = 1 \text{ and } y_{it-1} = 0 \end{cases} \quad (6)$$

After solving the above equations and taking into account regulatory conditions, Equation 7 below gives the optimal exporting status:

$$f_i(m_t, x_t, y_{t-1}, \varepsilon_t, \theta) = \max [u(m_t, x_t, y_{t-1}, y_t, \varepsilon_t, \theta) + \delta EV_i(m_t, x_t, y_t, \varepsilon_t, \theta)] \quad (7)$$

$$y_t \in \{0, 1\}$$

Given the parameter θ and distributional assumptions for the exogenous random variables $(m_t, x_{it}, \varepsilon_t)$, Equations 4 and 7 determine optimal export revenues for the i th enterprise as a function of a vector of macro variables (m_t) , the previous exporting status (y_{t-1}) , marginal costs and demand shifters (x_{it}^1, x_{it}^2) and transitory shocks $(\varepsilon_{1it}, \varepsilon_{2it})$. Hence, aggregated over enterprises, Equations 4 and 7 provide a framework for evaluating the impact of sunk costs, heterogeneity and history in affecting dynamics of exports at an industry level. There are other important issues that need to be

taken into account regarding the model presented here. In particular, it is almost impossible computationally to obtain estimates of all parameters from a simple estimator, given the number of parameters involved and the need for several layers of numerical integration. In order to handle this complexity, studies have proceeded in two stages of estimations. The first stage involves solving the model and the second stage entails taking the results of a complex dynamic model and constructing a function for estimation.

The basic premise for this paper is that macroeconomic factors play an important role in influencing export propensities of small and medium enterprises in general. Small manufacturing is no exception to that. Therefore, for this paper, exogenous random variables (m_t , x_{it} , ε_t) would include microeconomic factors (m_t), and the previous exporting status is represented by (y_{t-1}), marginal costs and demand shifters by (x_{it}^1 , x_{it}^2) and transitory shocks by (ε_{1it} , ε_{2it}). For the purposes of this study the focus will be on microeconomic factors, such as enterprise characteristics, rather than macroeconomic factors. Research has shown that macroeconomic factors are critical, but limited analysis exists that systematically deals with microeconomic factors. Attention to microeconomic factors entails distinguishing the characteristics of exporters and non-exporters in terms of all micro variables that are traceable. x_{it}^1 , x_{it}^2 would include factors emphasized by export marketing and export development processes models. These include the role of access to information, sunk costs, business linkages (including

intermediaries and other forms of networks). The focus here will be on the determinants of export probabilities and export intensities of small and medium manufacturing enterprises in South Africa.

3. Profiling small and medium manufacturing in South Africa

Table I below shows the population and realized sample for small and medium manufacturing enterprises of the National Enterprise Survey. With the exception of North West Province, all provinces are represented in the small and medium manufacturing part of the survey. The realized sample for small and medium manufacturing enterprises equals 66% of the total response (55%). In total, 1,200 enterprises were targeted for interviews from a list comprising thousands of small and medium manufacturing enterprises. Nine hundred and forty-one small and medium manufacturing enterprises responded. The other 484 enterprises belonged to the services sector. Small and medium manufacturing entrepreneurs sampled were interviewed.

The survey was fairly comprehensive in that the questionnaire covered almost every aspect of enterprise operations in great detail. For example all enterprise activities, enterprise and managerial characteristics, types investment by an enterprise, response of an enterprise to a variety of economic and socio-political variables, trade behavior, enterprise relations, labor relations, etc.

The empirical analysis focuses on 941 small

TABLE I
Population and realized sample

	Population of small and medium manufacturing enterprises						Realized sample
	PE/EL	Blm/Kim/Welk	Jhb/ER/Pta	DBN/PMB	Nelspruit	CPT	
Food & beverages	60	54	495	142	35	236	101
Wood, pulp & paper	43	7	474	151	18	194	119
Chemicals	84	33	945	319	18	320	121
Auto	40	10	285	74	6	64	93
Clothing & textiles	45	15	547	380	7	345	116
Fabricated metals	108	41	1299	300	46	254	102
Furniture	8	9	194	68	10	86	86
Machinery	68	50	1462	244	22	314	110
Printing & publishing	25	14	708	111	6	187	93

and medium manufacturing enterprises in South Africa of which 415 are exporting. The main criterion used in classifying enterprises in terms of size is the equivalent of full-time employees. Table II below is an extract from the National Small Business Act (1996), which gives guidelines for definitions and classifications of enterprises by size class.

Table III below gives generic characteristics of

the data in a more detailed format. The data covered a wide range of sector categories, sectors, size classes and provinces.

The total numbers⁴ are shown in brackets and percentage shares of enterprises sum up to 100%. The size class distribution is dominated by very small enterprises, followed by small enterprises. There are more labor intensive manufacturing enterprises (36% of the total) than other cate-

TABLE II
Extract from the schedule to the National Small Business Act (1996)

Column 1	Column 2	Column 3	Column 4	Column 5
Sector or Sub-sectors	Size-Class	Total full-time equivalent of paid employee	Total annual turnover	Total gross asset value (fixed property excluded)
In accordance with the Standard Industrial Classification (SIC)		Less than	Less than	Less than
Manufacturing	Medium	200	R 25.00 m	R 7.50 m
	Small	50	R 6.00 m	R 1.75 m
	Very small	20	R 2.00 m	R 0.60 m
	Micro	5	R 0.15 m	R 0.10 m

TABLE III
Characteristics of the NES data

	Micro (100)	Very Small (322)	Small (209)	Medium (178)	Large (132)	Total (941)	Exporters (415)
Resource-intensive (220)	12	15	20	26	34	19	20
Food & beverage (101)	7	7	12	17	21	11	12
Wood, pulp & paper (119)	5	8	8	9	13	8	8
Scale-intensive (214)	15	20	19	19	20	19	19
Chemicals (121)	13	16	15	13	12	5	15
Auto assembly & parts (93)	2	4	4	6	8	14	4
Labor-intensive (304)	43	33	35	41	28	36	35
Clothing & textiles (116)	11	11	13	22	17	14	13
Fabricated metal (102)	29	18	18	16	9	18	18
Furniture (86)	3	4	4	3	2	4	4
Knowledge-intensive (203)	30	32	26	14	18	26	26
Elec. Machinery & other (110)	17	20	18	11	14	17	21
Printing & publishing (93)	14	11	8	3	4	9	5
Total (941)	100	100	100	100	100	100	100
Eastern Cape (81)	3	4	6	7	9	5	5
Gauteng (402)	64	63	52	39	36	54	50
KwaZulu-Natal (192)	19	16	16	23	24	18	20
Western Cape (201)	12	16	24	28	20	20	21
Other provinces (65)	2	1	2	3	11	3	4
Total (941)	100	100	100	100	100	100	100
Exporting (415)	40	26	42	61	80	43	100

gories. Resource intensive enterprises seem to be mainly large in size, compared to knowledge intensive sectors, which seem to be predominantly small. Scale intensive and labor intensive enterprises are widely distributed in terms of size classes.

43% of manufacturing enterprises in this survey come from Gauteng Province. Interestingly, it appears that Gauteng has more smaller size enterprises. This is the direct opposite of the Eastern Cape Province's size class spread. Another observation from data is that half of the Gauteng enterprises are exporting.

The empirical analysis specifically focuses on 415 exporting manufacturing enterprises, which is 43% of total respondents. This is made up of 40% of micro, 26% of very small, 42% of small, 61% of medium and 80% of large manufacturing enterprises. This spread is in line with statements that it is mainly larger enterprises that export.⁵ The

share of exporters from total enterprises increases with size. However, although most large enterprises export, the true number of exporting enterprises is larger for lower size classes. For instance, there are 300 small and medium manufacturers that export compared to 115 exporting large manufacturers. As proposed in this paper's hypothesis, smaller size classes of manufacturing do export.

Table IV captures the specific characteristics of the data, with emphasis on variables used in the analysis. The enterprises surveyed are relatively old, although almost half of the very small manufacturing enterprises are younger than 3 years (hereafter called infants). A surprising (median) number is 38 years of age of micro manufacturing enterprises. The micro manufacturing enterprises in this study seem very well established and doing well, contrary to the norm. For instance 40% of micro manufacturing enterprises are exporting.

TABLE IV
Specific characteristics of manufacturing by size class

	Micro	Very small	Small	Medium	SMM ^a
<i>Observations</i>	100	322	209	178	809
<u>Age</u>			<u>Years</u>		
Mean	53	17	23	23	22
Median	38	12	17	20	15
<u>Number of employees</u>			<u>Number of full-time employees</u>		
Mean	2	12	33	103	35
Median	2	11	31	91	20
			<u>Percentage Shares</u>		
Exporting	40	26	42	61	38
<u>Years of Exporting – if exporter</u>			<u>Years</u>		
Mean	12	9	11	12	11
Median	10	6	8	7	8
			<u>Percentage Shares</u>		
Infant	16	46	23	7	11
<u>Sunken costs, information & links</u>			<u>Percentage Shares</u>		
Sunken costs	17	14	10	17	14
Information	87	85	91	93	82
Linkages	22	11	14	46	19

^a SMM refers to small and medium manufacturing (including micro and very small).

The main variables of interest are sunk costs, information and linkages. Many enterprises have access to information. There are few enterprises that have cited the inability to penetrate export markets (a proxy for sunk costs). For instance, only 1 out of 10 small enterprises said that they were unable to penetrate export markets. It would seem that penetrating export markets is not a problem for many enterprises, the problem is maintaining higher export intensities. As suggested in the literature, smaller enterprises export only haphazardly, emanating from unsolicited export orders. The challenge is to remain in an export market and increase the proportion of output that is exported.

As articulated in most studies, exporters outperform non-exporters in most cases. The results of this paper support those findings.

A question examining the perceptions of enterprises with regard to turnover revealed that exporters expected higher turnover growth than non-exporters, both in the current year and the year that followed. Perceptions of industry turnover were poor for both exporters and non-exporters, although much worse for non-exporters. Table V below goes into some detail in distinguishing the behavior of exporters from non-exporters. For example, small manufacturing exporters are relatively older, have a relatively larger number of employees, they have greater access to information, have more linkages, a few are affected by sunk costs, competition, fluctuations in exchange rates, higher interest rates and more of them expect higher profitability in the following year.

The percentage shares of enterprises (out of totals) support the results of previous studies with

TABLE V
Outlook of small manufacturing enterprises
(percentage growth)

	Exporter	Non-exporter
Enterprise turnover		
Current year	12.5	3
Next year	19.6	9.6
Industry turnover		
Current year	-3.1	-3.5
Next year	5.9	4

regard to the characteristics of exporting enterprises. For example, there are more exporting enterprises expecting an increase in profitability in the following year than non-exporting enterprises. The same applies for other issues such as reaction to exchange rates, interest rates, taxes and competition. In addition, there are many non-exporting enterprises that are affected by uncertainty compared to exporting ones. Another example that shows the differences in the characteristics of exporting and non-exporting small and medium enterprises is involvement in linkages. Thirty-two percent of exporting small manufacturing enterprises have linkages, compared with 11% of non-exporting ones.

Unlike the previous discussions, the discussion now pays close attention to exporting small manufacturing enterprises. Some of their properties have already been mentioned above. To take the analysis further, let me discuss Table VI. The turnover of small manufacturing is in line with the one prescribed by the Act (1996), except for the

TABLE VI
Small manufacturing exporters versus non-exporters

	Exporters	Non-Exporters
<i>Observations</i>	309	500
Age (years)		
Mean	27	19
Median	20	14
Number of employees (numbers)		
Mean	49	27
Median	30	17
Uncertainty (%)		
Government policies	29	50
Labor regulations	41	48
Social problems	52	63
Other constraints (%)		
Profitability (increase)	72	63
Interest rates	48	56
Exchange rates	29	35
Corporate taxes	30	49
Competition	21	31
Sunk costs, information & link (%)		
Sunk costs	14	15
Information	92	85
Linkages	32	11

micro enterprises. As previously mentioned, the micro enterprises in this study seem fairly advanced. For most small and medium manufacturing enterprises here, total turnover is a million rand more than the guidelines given by the act. Regarding export earnings, although many small manufacturers export, the rand value of their total exports is low. Again, against the norm, micro manufacturing enterprises have higher export earnings than small and medium enterprises.

Table VII further shows that most small and medium manufacturing enterprises export to Africa, followed by the European Union. This is not surprising given that most studies on this subject find that small enterprises largely export to markets that are in transition (see for instance, Smallbone et al., 1999). It is also reasonable to suppose that proximity plays a role here. The next table examines exporting small and medium enterprises with linkages, with access to information and faced with sunk costs. Almost all exporting small and medium manufacturing enterprises have access to information.

Similarly to information, linkages play an important role for exporting. Table VIII shows that 1 out of 5 exporting small and medium manufacturing enterprises has a linkage, either in South Africa or overseas. There is a further breakdown of linkages in the table. It seems that most exporting enterprises have overseas linkages.

4. Empirical analysis

Correlation and regression analyses provide deeper insight into factors that influence the probability of being an exporter and the intensity of exporting for small and medium manufacturing enterprises in South Africa. There are many factors that influence the probability to export and the intensity of exporting.

These factors range from macroeconomic conditions to enterprise and/or managerial factors. For instance, factors perceived as macroeconomic constraints (i.e. high interest rates) and enterprise characteristics (i.e. profitability) as well as managerial characteristics (i.e. outlook) impact on the

TABLE VII
Exporting small and medium manufacturing enterprises

		Micro	Very small	Small	Medium	SMM
<i>Observations (only exporters)</i>		41	75	84	109	809
		<u>Million Rand</u>				
Turnover	Mean	84.1	11.4	11.1	43	35.8
	Median	30	3.2	7	26	11
	Standard deviation	149	36	32	59	78.3
Export earnings	Mean	9.3	1	1.7	6.8	4.7
	Median	3	0.2	0.5	2	0.9
	Standard deviation	14	3	4	14	10.7
		<u>Percentage shares</u>				
Export intensities	Mean	18	15	16	18	16
	Median	10	7	7	8	8
	Standard deviation	21	24	22	23	22
		<u>Percentage shares</u>				
Destination of export	Africa	57	71	56	57	64
	EU	30	20	24	29	21
	Asia	3	3	8	8	6
	Australia	7	2	6	4	3
	Other	3	4	6	2	6
	Total	100	100	100	100	100

TABLE VIII
Export marketing factors

	Micro	Very small	Small	Medium	SMM
<i>Observations (only exporters)</i>	41	75	84	109	809
	<u>Percentage shares</u>				
Access to information	94	87	96	93	92
Sunk costs	15	15	11	17	14
Linkages	22	11	14	46	19
<u>South African linkages</u>	<u>Percentage shares</u>				
Yes	53	43	52	71	57
No	38	24	40	54	34
<u>Foreign linkages</u>	<u>Percentage shares</u>				
Yes	87	73	61	82	79
No	33	24	41	57	35

probability to export. However, this paper asks questions relating to export marketing, information gaps, and entry and exit costs to international markets. This does not imply that other factors are not critical. Results of Table IX suggest that although factors such as lack of access to finance affect the operations of an enterprise, it is systematic factors relating to export marketing that effectively constrain successful exporting of small and medium manufacturing enterprises. The correlation table presented below shows that, amongst other factors, linkages and access to information increase the probability of being an exporter and also increase the intensity of export.

There are many unsystematic⁶ factors that affect the probability and intensity of exporting. It does seem, however, that the most significant factors (shown by asterisks) are the ones upon which this study is based. There are other variables that have signs that are not expected, but most of those are not significant.

There is a lesser number of factors affecting the intensity of exports compared to the number of factors affecting the propensity to export. Similar factors (i.e. access to information and business linkages) affect both the propensity and the intensity of exporting. The probability to export is also affected by other factors such as macroeconomic factors and enterprise perceptions. The intensity of exporting, in addition to access to information

and business linkages, is negatively and significantly affected by sunk costs. Perhaps the main problem for small manufacturers is to maintain exports rather than breaking into foreign markets.

I now turn to logit analysis and regressions. Logit estimates are ratios. They represent a chance of being one of two results, in this case exporter or non-exporter. As a rule of thumb, anything equalling one refers to equal chance, whilst above one is a chance and below one is half a chance.

Table X presents a model that proved robust and gave significant results. Amongst other factors that were significant are linkages and access to information. Others are significant but the probabilities are minimal. For linkages and information, the chance of being an exporter is 2 times larger than that for age for example. Corporate tax, competition and smaller enterprise size reduce the chance of being an exporter, but by very negligible proportions.

The regression of the intensity of exporting, for exporters only, shows that the same factors also play a role in export-output ratios. Typical constraints such as lack of access to finance and macroeconomic variables impact negatively on the intensity of exporting.

Of critical relevance to the analysis is the negative impact of sunk costs. The point made above that sunk costs reduce the intensity of exporting also surfaced in this regression. In fact,

TABLE IX
Correlation analysis (small and medium manufacturing)

	Propensity to export		Export intensity	
Linkages in South Africa	0.1731**	[0.0000]	-0.1202**	[0.0074]
Foreign linkages	0.22**	[0.0000]	0.2108**	[0.0018]
Total linkages	0.2564**	[0.0000]	0.0595	[0.3845]
Sunk costs	0.0093	[0.7954]	-0.1773**	[0.009]
Member of association	-0.0305	[0.3951]	-0.0973	[0.1550]
Profitability, last year	0.0443	[0.2222]	0.0322	[0.6408]
Expected profitability, next year	0.097**	[0.0076]	0.0176	[0.7992]
Constrained by government policy uncertainty	-0.2001**	[0.0000]	0.0804	[0.2391]
Constrained by social uncertainties	-0.1378**	[0.0001]	0.0634	[0.3537]
Constrained by high interest rates	-0.0712*	[0.0458]	-0.0875	[0.2000]
Constrained by poor outlook in industry	0.0073	[0.8379]	-0.0991	[0.1465]
Constrained by uncertain exchange rates	-0.0559	[0.1171]	-0.923	[0.1766]
Constrained by labor regulations	-0.0605*	[0.0895]	0.0244	[0.7214]
Constrained by competition in South Africa	-0.1096**	[0.0021]	-0.1093	[0.1091]
Constrained by access to own finance	0.017	[0.6340]	-0.1093	[0.1093]
Constrained by access to borrowed finance	-0.00790	[0.8252]	-0.0187	[0.7849]
Constrained by corporate tax rates	-0.1877**	[0.0000]	0.0254	[0.7110]
Increase full-time employees, current year	0.148**	[0.0000]	0.105	[0.1240]
Has information from South African sources	0.1587**	[0.0000]	-0.0239	[0.7272]
Has information from foreign sources	0.1064**	[0.0028]	0.0064	[0.3540]
Has access to information	0.0956**	[0.0072]	0.1238*	[0.0694]
Positive outlook for firm's sales, current year	0.1358**	[0.0003]	0.2472**	[0.0005]
Positive outlook for firm's sales, next year	-0.0173	[0.6869]	0.0008	[0.9919]
Positive outlook for industry sales, current year	0.1538**	[0.0001]	0.1405*	[0.0585]
Positive outlook for industry sales, next year	0.0753*	[0.0903]	-0.0896	[0.2738]
Positive outlook for capital expenditure, this year	0.0988*	[0.0147]	-0.0792	[0.2974]
Positive outlook for capital expenditure, next year	-0.0069	[0.8716]	0.2**	[0.0085]
Fixed assets	0.2316**	[0.0000]	-0.0276	[0.6892]
Lack of working capital	0.0061	[0.8633]	-0.0618	[0.3660]
Lack of export finance	-0.0072	[0.8409]	-0.0161	[0.8145]

TABLE X
Logistic regression (1 = exporter and 0 = non-exporter)

Observations	809
R-squared	10.94
Size class (very small)	0.4124** [-5.255]
Age	1.0102** [2.823]
Constrained by competition in SA	0.6167* [-2.542]
Constrained by access to borrowed finance	1.7741* [2.529]
Constrained by corporate tax	0.5934** [-3.126]
Has linkages	2.5228** [4.775]
Has access to information	1.8698* [2.432]

a sunk costs variable is among few factors that are highly significant in their influence on export-output ratios of small and medium manufacturing enterprises in South Africa.

5. Implications of the findings

For managers of small and medium enterprises that export or intend to export, the results suggest that it is better to engage in collaborative activities either with other enterprises and/or other structures. Related to this is that export market information gaps will hinder the enterprises' export propensities. Otherwise, lack of access to market information will impact negatively on the enterprises' export intensities.

In one way or another, smaller enterprises bear higher costs for information. Therefore, in the process of exporting, managers and/or owners of

TABLE XI
Regression analysis (export intensity)

Export Intensity (if exporting)	
<i>Observations</i>	193
<i>R-squared</i>	20.48
<i>Constant</i>	-0.0074 [-0.121]
<i>Infant</i>	0.2120*** [4.158]
<i>Constrained by social uncertainty</i>	0.0817** [2.564]
<i>Constrained by industry outlook</i>	-0.1038*** [-3.110]
<i>Constrained by unstable exchange rate</i>	-0.0627* [-1.888]
<i>Constrained by access to own finance</i>	-0.0812* [-1.948]
<i>Constrained to access to borrowed finance</i>	0.0888* [1.750]
<i>Number of full-time employees</i>	0.0007** [2.168]
<i>Access to information</i>	0.1307** [2.330]
<i>Linkages</i>	0.058 [0.191]
<i>Sunk costs</i>	-0.1219** [-3.031]

smaller size class enterprises ought to link up with other enterprises or designated bodies that can assist with export market intelligence. It has to be purely the responsibility of the management to search for export market information. The other important factor that enterprises and/or their management should take into account is planning and strategy. It is critical that an enterprise does not depend on unsolicited export orders because this will not always be the case. Once a decision to export has been taken a plan and/or a strategy will have to be developed. This can be a costly process. Therefore, it is advisable that enterprises make use of existing infrastructures in dealing with these matters.

For policy markers, the findings suggest that export marketing factors (including sunk costs and export market information) are critical for any export promotion program aimed at small and medium manufacturing enterprises. Perhaps it is not easy directly to alleviate export marketing con-

straints, but policies should at least mitigate these constraints by making effective use of existing export marketing structures of government. One possibility would be that government structures tasked with export promotion should actively promulgate export market information. Besides export promotion missions, export market intelligence that can be solicited without overseas visits should be accumulated and given to small and medium enterprises.

At a stage when an enterprise breaks into a foreign market for the first time, government ought to guide the process. Managers of especially smaller enterprise units would require dedicated support because the export process can be cumbersome. Therefore, a pool of export mentors and/or advisors in institutions mandated to promote exports and small and medium enterprises in general will be useful. Above this, institutions tasked with promoting exports should search for the export potential of small and medium enterprises and where identified mechanisms should be put in place in order to encourage successful exporting. The role of planning and strategy at an enterprise level is important. This should be the responsibility of both enterprises and government, especially in instances where the exporting potential of an enterprise has been noticed.

Notes

¹ Author's calculations are based on various issues of Statistics South Africa data, the South African Reserve Bank Quarterly Bulletins, South African Industry data, State of Small Business in South Africa data, etc.

² As defined in Philp (1998, p. 80), the propensity to export refers to the probability of either exporter or non-exporter whilst the intensity of exporting refers to the proportion of export sales to total sales. This paper pays special attention to the role of enterprise linkages; export marketing and sunk costs as major factors that impact on export propensities and intensities to export of small and medium enterprises in South Africa. Most existing literature has not examined these factors thoroughly, at least in South Africa.

³ Other studies take into account factors such as plant characteristics and owner characteristics (e.g. Buck et al., 2000), export marketing (Keesing, et al., 1992), macroeconomic forces (e.g. Bigstern et al., 1999), innovation (e.g. Wakelin, 1998), competition (e.g. Azam, 2001), previous exporting experience (e.g. Roberts et al., 1997), sunk costs (Das, et al., 2000) and export structure (e.g. Hoekman et al., 1997). In South Africa, there are very few studies that assess the exporting of small enterprises. A few studies that have

attempted to do that (i.e. Visser, 1998; Gumede, 2000; Naude et al., 2001) do not systematically evaluate export propensities, intensities and processes. This paper attempts to address the shortcomings of most studies on this subject, including international studies.

⁴ Note that the application of weights per calculation may result in slightly different numbers because observations are given equal weights.

⁵ For example, Bigstern et al. (1999) found that the average percentage of larger enterprises that exported was 71% across Cameroon, Ghana, Kenya and Zimbabwe.

⁶ The distinction is made between factors that are within the control (unsystematic) and those outside the control of an enterprise (systematic). The focus of this study is on the latter.

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