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Export Orientation and Performance of MSMEs in the fruit and vegetable sector in India

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Abstract

India's MSMEs, apart from constituting an important segment of the economy in terms of their contribution to generating income and employment, also contributed 48.1 percent of total export in 2018-19. This paper tries to study the determinants of export orientation and export performance of MSMEs in the fruit and vegetable sector of India. Using firm level data on MSMEs engaged in business of fruit and vegetables from all India census of MSME, we find that various firm specific characteristics, business environment, and access to institutional credit are positively associated with export orientation of these MSME units. Further, the market value of firms' fixed assets has a positive and significant impact on export growth.

Keywords: MSME, India, Export, Fruit and Vegetable Sector

JEL Classification: D22, D24, L25, L26, Q17

I: Introduction

Small and medium-sized enterprises (MSMEs) play an important role in the economies of many countries and India is no exception. According to the National Sample Survey (NSS) 73rd Round (2015-16)), the latest all-India survey of unincorporated enterprises of the government of India, micro, small and medium enterprise (MSME) sector has created 111.0 million jobs, (32.5 percent in manufacturing, 34.9 percent in trade, and 32.6 percent in other services), contributed 29.2 percent of the total GDP and contributed 49.9 percent of total export in 2015-16 (MSME, 2019). MSMEs in India are defined in accordance with the provision of MSME Development (MSMED) Act, 2006. The MSMED Act, 2006 defines MSMEs by investment limits, which are different for manufacturing and services. In the manufacturing sector, MSMEs are defined by investment in plant and machinery. A micro enterprise is an

enterprise where investment does not exceed Rs. 2.5 million, a small enterprise is an enterprise where such investment is between Rs. 2.5 million and Rs. 50 million, and a medium enterprise is an enterprise with investment in plant and machinery is more than Rs. 50 million but does not exceed Rs. 100 million. In the case of service sector, MSMEs are defined by investment in equipment. In this case, a micro enterprise has investment in equipment that does not exceed Rs. 1 million, a small enterprise has such investment between Rs. 1 million and Rs. 20 million, and a medium enterprise is an enterprise where investment in equipment is between Rs. 20 million and Rs. 50 million (Ministry of Law and Justice, 2006). Thus, in the Indian definition of MSMEs, the sole defining criterion is investment limits. Number of employees does not have any role in the definition of MSMEs in India.

India is a country that has a large agricultural economy; the proportion of agricultural areas in India is as high as 60.5 percent of the country's total area (CIA, 2020), and 2019 has labor force in the agricultural sector 42.4 percent of the total labor force in India (World Bank Group, 2020). In 2019, India was the 19th largest exporters of vegetables and fruits of the world with an export value of 2,645 million USD, equivalent to 0.8 percent of total exports of India, which, compared to 10 years ago (2009) indicates an increase of about 42.0 percent . The major destinations of India's fruits and vegetables export are Middle Eastern and Asian countries, followed by European countries (GTA, 2020). There is a large and growing sector of MSMEs in India based on agricultural produce that is engaged in processing, packaging, and marketing of agricultural products, particularly fruits and vegetables.

This paper presents an empirical study of the exporting MSMEs in the fruit/vegetables sector in India. In particular, it presents an analysis of some features of the fruit/vegetables MSMEs and determinants of export orientation and export performance of MSMEs. Such a study is important to understand the strength of MSMEs to increase competitive advantage and support the economy for growth, and in formulating policies for the development and promotion of MSMEs to have more production and export potential. Using firm level data on MSMEs engaged in business of fruit and vegetables from all India census of MSME, we find that age, employment level, volume of credit, access to institutional credit, technical know-how, quality of products and practice of maintaining accounts are positively associated with export orientation of these MSME units. For export performance, the market value of fixed assets has a positive and significant impact on export growth. These findings are in line with the existing literature and thus these findings strengthen the literature.

We organize this paper as follows: Section II presents a literature review, Section III discusses data, variable construction, and methodology used in paper, the results of the estimations are discussed in Sections IV, and the final section sums up the study.

II: Literature review

Although MSMEs are often instrumental in providing sustainable growth, employment generation, increasing trade, development of entrepreneurial skills, and contribution to export earnings, there are studies on problems, obstacles, and limitations that affect SMEs 'exports in many countries, both developing and developed. Studies have documented various challenges faced by exporting MSMEs, viz., credit constraints, financial and liquidity constraints, cost of international marketing and branding etc.

For example, Pietrovio and Pozzlo (2019) studied 19,000 SMEs from 65 emerging and developing economies and found a robust evidence of a negative and statistically significant effect of financial and credit constraints on probability of exports as well as share of exports to total sales (also known as extensive margin and intensive margin respectively) of SMEs.

Likewise, Berman and Héricourt (2010) studied a sample of 5,000 firms from 9 developing and emerging economies to find out how financial factors affect both firms' export decisions and the amount exported by firm. The study indicated that productivity becomes increasingly important for exporting decisions as financial constraints decrease. However, in their sample, neither the quantity exported nor the probability of remaining an exporter is affected by financial constraints, meaning that the role of financial constraints on margins of trade is concentrated at the time of entry. Wang (2016) uses data collected by the European Central Bank (ECB) and the World Bank on 28 East European and Central Asian countries, confirming that financially constrained firms are less likely to export. Similarly, Abor et al. (2014) suggested that in Ghana, SMEs' access to bank finance improves their likelihood to export and such. Finance is critical to cater to the high fixed costs of exporting, international marketing and branding, and meeting higher quality standards required for overseas markets. On export barriers faced by Tanzanian SMEs, Mpunga (2016) found that among other barriers, export incompetencies, especially inadequate and instable financial capital, language barrier, production technology, lack of knowledge on ICT and low standard of products, export market characteristics such as complicated business laws/regulations, customers' indifference with foreign goods, price uncertainty in the export markets, product competition in the export

market, and complicated travel accreditation (passport/Visa) were the most significant barriers faced by exporting SMEs of Tanzania. According to this study, the exporting SMEs of Tanzania also faced challenges in national business environments, especially difficult accreditation for export of goods, complicated business laws and procedures, unconducive trade financing for SMEs, and higher taxes on production and export.

Some studies point out the link between financial constraints and export behavior of the firm. Firms enjoying better financial health are more likely to become exporters. Better access to external financial resources increases the probability to start exporting and also shortens the time before firms decide to serve foreign customers. This finding has important policy implications as it suggests that, in the presence of financial market imperfections, public intervention can be called for to help efficient but financially constrained firms to overcome the sunk entry costs into export markets and expand their activities abroad (Bellone et all., 2010).

For India, although MSMEs play a pivotal role in the growth of the economy, this sector often faces severe challenges. It does not get the required support from the concerned government departments, banks, financial institutions, and corporates, and the absence of adequate and timely finance is an important problem faced by existing or new companies, which is a hurdle in the growth path of the MSMEs (Biswas, 2014). While there is a large literature on Indian SME/MSME sector's contribution to Indian economy (Pradhan et al. (2012), Rentala et all., (2014), Ghouse (2014)), there is no study on the export potential of MSMEs in India. Moreover, there is no study on the export potential of the MSMEs in the fruit/vegetable sector. This paper attempts to fill this gap in the literature by empirically analyzing factors that impact export orientation and export performance of MSMEs in the fruit and vegetable sector in India.

III: Data, and methodology

Data

This study employs data from "Fourth All India Census of Micro, Small & Medium Enterprises firm level 2006-07" of the office of Development Commissioner (MSME), Ministry of Micro, Small & Medium Enterprises, Government of India[1]. This is the latest census of all MSMEs in India that collected data pertaining to 2006-07 and published in 2011-12. This census covered 1,542,560 MSMEs all over India. The information on the main three

[1] Data are taken from (http://www.dcmsme.gov.in/ito_msme/censuses.htm) accessed in September 2019.

types of products of each MSME covered by the census has been provided in the form of ASICC/NIC code from the system of 'Annual Survey of Industry Commodity Classification (ASICC)' and 'National Industrial Classification (NIC)' of the Ministry of Statistics and Programme Implementation (MOSPI), Government of India. We decodify the main product code of each MSME to obtain details of those MSMEs specifically engaged in fruit and vegetable products. We found that a total of 5,836 MSMEs covered by the MSME census were engaged in the fruit and vegetable sector and utilize the firm level data of these 5,836 MSMEs in this study. Using information on original value in plant and machinery of these firms to classify them as micro, small and medium using the definition of MSMEs in India, we find that out of these MSMEs in the fruit and vegetable sector, 96.5 percent was Micro Enterprise, 3.5 percent was Small Enterprise, and a negligible 0.1 percent was Medium Enterprise. Thus, an overwhelming proportion of the firms we analyse here are micro enterprises. These firms were engaged in manufacturing of fresh, processed and packaged products with various fruits and vegetables. About 38 percent of these firm units were engaged in activities related with cashew nuts, 23 percent dealt with pomegranate, and about 15 percent were engaged in activities with coconuts (copra, fresh coconut, and processed coconuts including powder). Other firms dealt, in various proportions, with products related to apples, lemon, garlic, potatoes, nuts, raisins, mangoes, tamarind, tapioca, chillis, ginger, peas, dates, mushrooms, jack fruit, onions, tomatoes, etc. Approximately 70 percent of the firms operated throughout the year, while 30 percent operated seasonally.

About 76.3 percent of the firms were located in rural areas. and more than half of them (about 54 percent) were located in Southern Indian states. 32 percent were located in Western India. Northern and Eastern States account for about 6 percent each while about 1 percent of them were located in the remote North Eastern States. More than 88 percent of these firms were organized as family units under Hindu Undivided Family (HUF) structure and about 6 percent were organized as partnership. About 3 percent of these firms were private companies while a small proportion was organized as public companies (0.8 percent) and cooperatives (0.5 percent). About 14 percent of the enterprises were owned by women and about 80 percent of the firms were owned by Hindu owners. Muslim owners owned 10 percent and Christian owners owned about 6 percent of the firms, while the rest were owned by Shikh, Jain, Buddhist and others. About business management, 91.7 percent of these MSMEs were managed by a male, while 54.9 percent maintained accounts. Only about 12.3 percent of these firms benefitted from government schemes for promotion of MSMEs. For accessing loans, those

who received institutional loans were only 24.6 percent, while those that did not receive credit any credit (institutional and non-institutional) accounted for 72.7 percent of all entrepreneurs, perhaps indicating a situation of credit constraints among these MSMEs.

Of these 5,836 small firms, a small number of 266 firms were engaged in export business. Thus, only a small proportion of about 5 percent of the firms were exporting firms. The focus of this paper is to understand factors that are associated with firms' decision to export and, among the exporting firms, factors that determine export growth. We discuss the methodology for the study in the following subsection.

Methodology

The objective of this study is to study the determinants of (1) export orientation and (2) export performance of MSMEs in the fruit and vegetable sector of India. Therefore, to achieve the objectives of the study, we use two regression models. First, the logit model is applied to study the factors affecting the export orientation, captured by a binary variable indicating whether an MSME export or no, and independent variables include socio-economic characteristics, firm characteristics, and some geographic factors, as discussed in the following subsection. In the second model, a linear regression model is used to study the determinants of export growth of the fruit and vegetable MSMEs. We discuss both the models below:

Model for determinants of export orientation:

In this model, the dependent variable (Exporting) is a dummy variable that takes value 1 if an MSME exported in the survey year (2006-07) and 0 otherwise. The dependent variable is a binary variable, therefore linear regression model will be inappropriate, and we need to apply dummy dependent variable model (logit or probit), where the probability of the dependent variable taking value 1 is modeled. The logit model has the advantage that the logarithm of the odds ratios can be expressed as a linear regression model. In this paper, we use a logit model and report the coefficients of the log odds ratio form of regression.

The specific form of the logit model is

$$p = \Pr\{Exporting = 1\} = \frac{e^{X\beta}}{1+e^{X\beta}} \text{ ----------(1)}$$

Where X is a vector of independent variables and β is a corresponding vector of coefficients. The independent variables included in the vector X are discussed in Table 1.

Model (1) is non-linear model. The coefficients themselves do not indicate the extent of the impact of an independent variable on the probability of exporting. In this model, the odds ratio is defined as:

$$Odds\ Ratio = \frac{p}{1-p} = e^{X\beta}$$

$$\ln \frac{p}{1-p} = X\beta$$

Thus, the natural logarithm of the odds ratio is linear in the explanatory variables.

Model for determinants of export performance:

For analysis of the factors that affect export performance of MSMEs we use, the linear regression model and using data only of those SMEs that export. Dependent variable here is export growth during the year 2005-06 to 2006-07 of MSMEs that exported in these years. Independent variables include socio-economic and firm level characteristics including loan status and other variables. The definitions, descriptions, and symbols of variables used in this study are presented in Table 1. The specific regression equation for export performance of exporting firms is

$$\text{Export Growth}=\beta_0+\beta_1X_1+\ldots\ldots\ldots\ldots\ldots+\beta_kX_k+u \text{----------(2)}$$

Where X_1, X_2,…….., X_k are independent variables, β1 β2, etc are regression coefficients and u is the error term following normal distribution with zero mean and variance σ^2.

The same set of explanatory variables is used for both the models, the logit model for export orientation and the linear model for export growth. We club these explanatory variables as location specific variables, firm specific variables and business environment variables. Location specific variables are used to indicate MSME firms' location (rural/urban and regional location). Firm specific variables indicate firm level characteristics and the business environment variables capture institutional characteristics, such as government policies and schemes, credit availability, quality certification from government, etc. All variables are constructed using firm level data of fruit and vegetable MSMEs from fourth All India Census of MSMEs, 2006-07.

Table 1. Definition and construction of variables

	Symbols	Variable description	Variable construction
		Dependent Variables	
	Exporting (Export orientation equation, equation (1))	Exporting	Dummy variable; 1 if a firm export; 0 otherwise
	Export Growth (Export performance equation, equation (2))	Value of Export Growth During 2005-06 to 2006-07	Growth (%)
		Independent Variables	
Location specific	Sector	Rural/Urban sector code	Dummy variable; 1 if a firm from rural India, 0 if a firm from urban India
	North and Central	North India Uttar Pradesh, Delhi, Uttarakhand, Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir, Chandigarh Central India Madhya Pradesh, Chhattisgarh	Dummy variable; 1 if a firm is located in North and Central India; 0 otherwise
	North East and East*	North East India Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura East India West Bengal, Bihar, Jharkhand, Orrisa	Dummy variable; 1 if a firm is located in North East and East India; 0 otherwise
	South	South India Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Puducherry, Lakshadweep, Andaman and Nicobar	Dummy variable; 1 if a firm is located in South India; 0 otherwise
	west	west India Goa, Gujarat, Maharashtra, Daman and Diu, Dadra and Nagar Haveli, Rajasthan	Dummy variable; 1 if a firm is located in west India; 0 otherwise

	Symbols	Variable description	Variable construction
Firm specific	Know How	Technical Know How	Dummy variable; 1 if Technical Know How Obtained from Abroad, Domestic Collaboration company, Domestic R&D institution/specialized agency /organization ; 0 otherwise
	Women_Ent	Is the MSME Unit a Women Enterprise (An enterprise managed by one or more women entrepreneurs in proprietary concerns, or in which she/ they individually or jointly have a share capital of not less than 51 % as partners/ shareholders/ directors of Private Limited company/Members of Co-operative Society is called a 'Woman enterprise')	Dummy variable; 1 if firm's enterprise is female; 0 if male
	Man_By	Whether Managed by a Male or Female	Dummy variable; 1 if firm's managed by male; 0 if female
	ACC	Is Unit Maintaining Account	Dummy variable; 1 if firm maintaining account; 0 otherwise
	Age	Age of the MSME in 2007, derived by subtracting year of Initial Production from 2007	The number of years of production from beginning until 2007
	Ln Mkt_VFA	Natural logarithm of Market Value of Fixed Assets	Original variable in Rs
	EMP	Number of Total Employees	
	LnWage	Natural log of total wage bill during 2006-07 in Rs.	Original variable in Rs
	GVA	Gross value added growth during 2005-06/2006-07	Growth (%)
	NET	Net worth growth during 2005-06/2006-07	Growth (%)
	AMT_Loan_Take	Amount of Loan Taken	Amount of Loan Taken in Rs

	Symbols	Variable description	Variable construction
Business environment	Scheme	Scheme/Programmes through which the MSME Unit has benefited	Dummy variable; 1 if unit has been benefited from 1-10; 0 otherwise 1) Credit Guarantee Scheme for setting up of unit or for Working Capital Loan 2) Credit Linked Capital Subsidy Scheme for Technology Upgradation 3) Performance and Credit Rating Scheme 4) ISO 9000/ISO 14001 Certification Reimbursement Scheme 5) Marketing Assistance and Export Promotion Scheme 6) Bar Coding Reimbursement Scheme 7) Rural Employment Generation Program (REGP) 8) Prime Minister's Rozgar Yojana (PMRY) 9) Micro & Small Enterprise Cluster Development Programme (MSE-CDP) 10) Others
	Qua_CER	Whether the MSME Unit has obtained Quality Certificate	Dummy variable; 1 if firm has obtained Quality Certificate1-4; 0 otherwise 1) QMS-ISO:9000 2) EMS-ISO:14001 3) Both 4) Others
		Loan Status: Whether the Unit has Taken Loan	

	Symbols	Variable description	Variable construction
	IS	Institutional	Dummy variable; 1 if the firm has received all loans from institutional source, 0 otherwise
	Non-IS	non-institutional	Dummy variable; 1 if firm receives only non-institutional loans, 0 otherwise
	IS + Non- IS	Both institutional and non-institutional	Dummy variable; 1 if firm receives loans from both institutional and non-institutional sources, 0 otherwise
	No Loan*	None	Dummy variable; 1 if firm has not received any loan from any source, 0 otherwise.

Note: dummy variables marked with * are used as omitted category in the regression estimation.

IV: Results and Analysis

Descriptive Statistics:

Table 2 reports the descriptive statistics of variables defined above for all MSMEs. These variables will be used for estimating equation (1). Table 2 shows that only about 4.6 percent of the MSMEs in the fruit and vegetable sector of India exported in 2006-07. Table 3 presents the descriptive statistics of these variables only for the exporting MSMEs for equation (2).

The descriptive statistics presented in Tables 2 and 3 indicate that the fruit/vegetables MSMEs in India were primarily rural based and most of them were located in south and west India. About 13 percent of the MSME units were owned by women but overwhelming majority (more than 90 percent) were managed by men. About 55 percent of all the units maintained accounts, however, this ratio is much higher for the exporting units, at 82 percent. The average age of a unit, when all units are taken together, was 8.6 years, while the average age of a unit is much higher at 14 years when only the exporting units are considered. The average number of persons employed was 31 for the entire sample, but much higher at 138 for the exporting

units. Thus, although overwhelming majority of these firms are micro enterprises in terms of investment, they were, on an average, large employers. Only about 12 percent of the units benefitted from one or more government schemes for MSME promotion and this proportion does not change when we consider only exporting firms. Thus, the exporting firms did not benefit more than other firms from government schemes. The proportion of MSME units that received a quality was only 4 percent when all units are taken together, but this proportion is much higher at 23 percent when only exporting units are considered. In terms of growth of output, input, gross value added and net worth during 2005-06 and 2006-07, the exporting units displayed much higher growth rates than the full sample values. Similarly, when all units are considered, about 25 percent received institutional loans but this proportion goes up to 31 percent when we consider only the exporting firms.

Table 2. Summary statistics of variables for export orientation equation (include all firms)

Variable	Obs	Mean	Std. Dev.	Min	Max
Exporting	5836	0.05	0.21	0	1
Sector	5836	0.76	0.43	0	1
North and Central	5836	0.07	0.25	0	1
North East and East	5836	0.07	0.25	0	1
South	5836	0.54	0.50	0	1
West	5836	0.32	0.47	0	1
Women_Ent	5836	0.14	0.35	0	1
Man_By	5836	0.92	0.28	0	1
ACC	5836	0.55	0.50	0	1
Age	5836	8.66	8.17	0	73.00
Ln Mkt_VFA	5836	13.08	1.69	0	20.34
EMP	5836	31.45	75.71	1	1,100.00
LnWage	5836	11.17	3.27	0	19.42
Scheme	5836	0.12	0.33	0	1
Know How	5836	0.14	0.34	0	1
Qua_CER	5836	0.04	0.19	0	1
GVA	5836	45.72	396.17	-2,507.94	998.32
NET	5836	26.32	365.19	- 100.00	984.91
IS	5836	0.25	0.43	0	1
Non-IS	5836	0.01	0.12	0	1
IS + Non- IS	5836	0.01	0.12	0	1
Non –Loan	5836	0.73	0.45	0	1
AMT_Loan_Take (lakh)	2724	10.56	54.37	0	1,500.00

Table 3. Summary of statistics of variables for export performance equation (exporting firms only)

Variable	Obs	Mean	Std. Dev.	Min	Max
Export growth	266	8.55	75.28	-100	939.04
Sector	266	0.76	0.43	0	1
North and Central	266	0.06	0.24	0	1
North East and East	266	0.02	0.14	0	1
South	266	0.64	0.48	0	1
West	266	0.28	0.45	0	1
Women_Ent	266	0.13	0.34	0	1
Man_By	266	0.94	0.23	0	1
ACC	266	0.82	0.39	0	1
Age	266	14.03	11.70	0	59.00
Ln Mkt_VFA	266	14.32	2.11	0	18.56
EMP	266	137.99	205.55	1	1,100.00
LnWage	266	12.80	3.58	0	17.33
Scheme	266	0.12	0.33	0	1
Know How	266	0.12	0.32	0	1
Qua_CER	266	0.23	0.42	0	1
GVA	266	68.73	398.15	- 99.80	769.24
NET	266	59.71	655.94	- 95.94	984.91
IS	266	0.31	0.46	0	1
Non-IS	266	0.03	0.16	0	1
IS + Non- IS	266	0.02	0.14	0	1
Non -Loan	266	0.65	0.48	0	1
AMT_Loan_Take (lakh)	155	62.84	157.00	0	1,000.00

5.2 Regression results: Determinants of export orientation

As indicated, the logit model is adopted to estimate the determinants of the export orientation of MSMEs in the fruit and vegetable sector of India. The estimated coefficients of various explanatory variables in the regression of log odds ratio, along with the respective standard errors, Z-statistics, and the corresponding p-values are presented in Table 4.

Among the location specific variables considered in the regression, the variables capturing North and Central Indian States, South Indian states and West Indian states are found to be positive and significant at 10 percent, 10 percent and 5 percent levels respectively. This implies that MSMEs located in other parts of India are more likely to export compared to the MSMEs in North East and East India, the omitted category. It is well known that Eastern and North Eastern States of India are more under developed and less industrially developed, thus leaving few or no opportunities for export business. On the other hand, Western, Northern and Central and South Indian States are comparatively more industrialized than Eastern and North

Eastern States, and this create good environment for export for the fruit and vegetable MSMEs in these parts of India. The variable sector is not significant. Therefore, we conclude that being located in rural region does not significantly affect the export orientation of fruit and vegetables MSME in India compared to being located in urban region.

Among firm specific variables, following are found to be significant determinants of Indian fruit and vegetable MSME firms' odds in favour of export: maintenance of accounts (ACC), age of the firm (Age), number of employees (EMP), technical know how (Know_How), quality certification (Qua_CER), access to institutional credit (IS) and amount of loan (AMT_loan_Take).

The variable ACC is a dummy variable indicating whether the firm maintains written account of business. The positive and highly significant coefficient of this variable indicates that the MSMEs that maintain accounts are more likely to be exporters. Maintenance of accounts reflects mature and more professional business management and hence this positive association between this variable and odds of exporting is as per expectation. Age is positively associated with odds of export at 5 percent level, indicating that older firms have higher odds of exporting; this is as per expectation, because small firms first acquire business experiences domestically and then move on to expand their business internationally, indicating that age of a firm matters significantly and positively for export decision of the firm. Number of employees is also positive and highly significant for log odds of exporting, indicating that exporting firms are more likely to be larger firms (with more employees).

The variable Know_How is positive and significant at 5 percent level of significance. It indicates that MSME firms in our sample which acquire technical know-how through collaboration and R&D are more likely to export compared to those who do not indulge in acquiring technical know-how. This is quite an intuitive result and reflects the spillover benefits of collaboration as well as the benefits of technological advancement. Further, MSMEs that obtained any certificate for the quality of their product are more likely to be exporter, as indicated by the highly significant and positive coefficient of the variable Qua_CER in Table 4. It is quite easy to interpret this result, as the quality certification such as ISO certification from the government agencies helps in marketing products in the foreign markets and in improving access to foreign markets.

MSMEs that received institutional credit are more likely to be exporters, as indicated by the positive and significant coefficient of the variable IS in the log of odds ratio of exporting.

The importance of institutional credit, as discussed at length in the literature review section, is thus confirmed for our sample of exporting F&V MSMEs in India. In addition, the coefficient of the variable AMT_Loan_Take, which indicates total volume of credit from any sources (institutional and non-institutional) availed by firms, is highly significant and positive in determining the odds of export. Thus, volume of credit is an important factor for export orientation for fruit and vegetables MSMEs in India.

Table 4. Result of logistic estimation –Determinants of export orientation

Dependent Variable= ln (odds ratio of probability of exporting)

Variable	Coefficients	Std. Err.	z	P>z
Sector	1.307	0.302	1.16	0.248
North and Central	3.153*	2.190	1.65	0.098
South	2.821*	1.718	1.70	0.088
West	4.341**	2.739	2.33	0.020
Women_Ent	1.154	0.313	0.53	0.597
Man_By	1.358	0.564	0.74	0.461
ACC	2.234***	0.526	3.41	0.001
Age	1.019*	0.010	1.94	0.052
Ln Mkt_VFA	1.057	0.070	0.84	0.399
EMP	1.005***	0.001	4.86	0.000
LnWage	1.032	0.033	1.00	0.319
Scheme	1.018	0.252	0.07	0.942
Know How	0.581**	0.160	-1.98	0.048
Qua_CER	7.979***	2.042	8.12	0.000
GVA	1.001	0.001	0.80	0.424
NET	0.999	0.002	-0.54	0.592
IS	0.634**	0.138	-2.09	0.037
Non-IS	1.459	0.702	0.78	0.433
IS + Non- IS	0.566	0.335	-0.96	0.336
AMT_Loan_Take	1.000***	0.000	3.01	0.003
Constant	0.002	0.002	-5.86	0.000
Number of obs	2684			
LR chi2(24)	249.830			
Prob > chi2	0.000			
Pseudo R2	0.216			

Note: The stars ***, **and *, show coefficients that are significant at and 1%, 5% and 10% respectively

All other firm specific explanatory variables considered in our regression (rural/urban (Sector), women enterprise (Women_Ent), firm's managed by male (Man_By), market value of fixed assets (Ln Mkt_VFA), total wage (LnWage), value added growth (GVA), net worth

growth (NET), scheme/programmes (Scheme), non-institutional (Non-IS), both institutional and non-institutional (IS + Non- IS) are insignificant. Thus, gender of the owner and manager did not seem to have any significant impact on firms' participation in the export market. Although there are several government schemes to promote the MSME sector in India, only about 12 percent of the sample MSMEs have benefitted from any such scheme. Thus, the government schemes have not penetrated well among the F&V MSMEs considered in our sample and thus we do not find any significant impact of these schemes in export orientation of our sample firms.

Table 5. Result of linear regression –Export performance of MSMEs

Dependent Variable= Export Growth

Variable	Coefficients	Std. Err.	t	P>t
Sector	-8.971	9.952	-0.90	0.369
North and Central	0.076	34.492	0.00	0.998
South	-7.186	30.505	-0.24	0.814
West	-15.823	31.353	-0.50	0.615
Women_Ent	-18.746	10.897	-1.72	0.088
Man_By	-20.034	17.934	-1.12	0.266
ACC	1.014	10.641	0.10	0.924
Age	-0.086	0.376	-0.23	0.819
Ln Mkt_VFA	4.924**	1.967	2.50	0.014
EMP	-0.024	0.035	-0.69	0.491
Scheme	-0.250	11.677	-0.02	0.983
Know How	18.152	11.961	1.52	0.132
Qua_CER	-4.833	9.694	-0.50	0.619
LnWage	-0.504	1.191	-0.42	0.673
GVA	0.007	0.039	0.18	0.860
NET	0.120	0.096	1.24	0.216
IS	3.193	9.454	0.34	0.736
Non-IS	3.935	21.025	0.19	0.852
IS + Non- IS	-12.928	25.704	-0.50	0.616
AMT_Loan_Take	0.000	0.000	0.00	0.999
Constant	-26.733	41.284	-0.65	0.518
Number of obs	150			
F (23,126)	1.040			
Prob>F	0.425			
R-squared	0.139			
Adj R-squared	0.005			

Note: The stars ***, **and *, show coefficients that are significant at and 1%, 5% and 10% respectively.

5.3 Regression Results: Determinants of Export performance

The analysis for determining the factors that affect export performance of fruit and vegetable MSMEs in India is done by the linear regression model and using data only of those MSMEs that export. The dependent variable in this regression is export growth in 2006-07. The estimated coefficients of different independent variables of the regression of export performance of MSMEs of India are presented in Table 5. Among all the independent variables considered, only one variable, viz., the logarithm of market value of fixed assets (Ln Mkt_VFA) is found to be significant in explaining export growth of exporting F&V MSMEs in India. It is found that if the market value of fixed assets (in log terms) of MSME increases by 1 percent, the export performance increases by 4.92 percent. Market value of fixed assets reflects the true updated value of the firm's fixed assets, hence a higher market value of assets implies better financial health of the firm that affects positively in export growth. Other than this variable, no other explanatory variables are found to be significantly associated with export growth of exporting MSMEs in the fruit and vegetable sector in India.

To summarize, we find that while export decision of small exporting firms are influenced by several location specific, firm specific, and business environment variables, the export performance (measured by export growth) of these firms are explained only by financial health of firms.

V: Conclusion

This paper presents an empirical to study on the determinants of export orientation and export performance of MSMEs in the fruit and vegetable sector of India. Export orientation is defined as the decision to export and a logit regression is conducted to estimate the significant factors that determine probability (or odds) of a firm deciding to export. The results from logit regression showed that firms located in West India are more likely to export. Further, technical know-how of firm, accounts maintenance of firm, age of firm, obtaining a firm quality certificate, firm's volume of credit and the firm receiving a loan from the institution have a significant relationship with probability or odds of exporting.

Determining the factors affect export performance of MSMEs by the linear regression model and using data only of these MSMEs that export we found that the market value of fixed assets has positive and significant impact on export growth. Thus, if the market value of fixed assets of MSMEs' firm increases, the export performance of MSMEs' firm increases, indicating that financially sound firms perform well in export performance.

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